

ENTEGRIS INC
Form 424B3
March 20, 2019
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Registration No. 333-229931

MERGER PROPOSAL YOUR VOTE IS VERY IMPORTANT

Dear Stockholder:

On January 27, 2019, Entegris, Inc., which is referred to as Entegris, and Versum Materials, Inc., which is referred to as Versum, entered into an Agreement and Plan of Merger, as it may be amended from time to time, which is referred to as the merger agreement, pursuant to which they agreed to combine their respective businesses in a merger of equals. The combined company will be a premier specialty materials company for the semiconductor and other high-tech industries. Pursuant to the terms of the merger agreement, Versum will merge with and into Entegris, which transaction is referred to as the merger, with Entegris as the surviving corporation. Following the merger, the combined company will retain the Entegris name.

Upon successful completion of the merger, each issued and outstanding share of Versum common stock will be converted into the right to receive 1.120 shares of Entegris common stock, which number is referred to as the exchange ratio. This exchange ratio is fixed and will not be adjusted for changes in the market price of either Entegris common stock or Versum common stock between the dates of signing of the merger agreement and completion of the merger. Entegris stockholders will continue to own their existing Entegris shares. Based on the fully-vested shares outstanding of each of Entegris and Versum, including exercisable options only, Entegris stockholders will own approximately 52.5% and Versum stockholders will own approximately 47.5% of the issued and outstanding shares of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger. Entegris common stock is traded on the NASDAQ Global Select Market under the symbol ENTG. Versum common stock is traded on the NYSE under the symbol VSM. The common stock of the combined company is expected to be listed on NASDAQ or the NYSE under the symbol ENTG. Stockholders will be informed in conjunction with the closing on which exchange the shares will trade. We encourage you to obtain updated quotes for the common stock of both Entegris and Versum.

Entegris and Versum will each hold special meetings of their respective stockholders in connection with the proposed merger, which are referred to as the Entegris special meeting and the Versum special meeting, respectively.

At the Entegris special meeting, Entegris stockholders will be asked to consider and vote on (1) the proposal to adopt the merger agreement (including the issuance of shares of Entegris common stock to Versum stockholders pursuant to the merger agreement), which proposal is referred to as the Entegris merger agreement proposal, (2) the proposal to adopt the amended and restated certificate of incorporation of Entegris, (3) the proposal to approve, on a non-binding advisory basis, specific compensatory arrangements between Entegris and its named executive officers relating to the merger and (4) the proposal to adjourn the Entegris special meeting to solicit additional proxies if there are not sufficient votes to approve the Entegris merger agreement proposal or the Entegris charter proposal or to ensure that any supplement or amendment to the accompanying joint proxy statement/prospectus is timely provided to Entegris stockholders. **The board of directors of Entegris unanimously recommends that Entegris stockholders vote FOR**

each of the proposals to be considered at the Entegris special meeting.

At the Versum special meeting, Versum stockholders will be asked to consider and vote on (1) the proposal to adopt the merger agreement, which is referred to as the Versum merger agreement proposal, (2) the proposal to approve, on a non-binding advisory basis, specific compensatory arrangements between Versum and its named executive officers relating to the merger and (3) the proposal to adjourn the Versum special meeting to solicit additional proxies if there are not sufficient votes to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to the accompanying joint proxy statement/prospectus is timely provided to Versum stockholders. **The board of directors of Versum unanimously recommends that Versum stockholders vote FOR each of the proposals to be considered at the Versum special meeting.**

We cannot complete the merger unless Entegris stockholders approve the Entegris merger agreement proposal and Versum stockholders approve the Versum merger agreement proposal. **Your vote on these matters is very important, regardless of the number of shares you own. Whether or not you plan to attend your respective special meeting in person, please promptly mark, sign and date the accompanying proxy and return it in the enclosed postage-paid envelope or authorize the individuals named on your WHITE proxy card to vote your shares by calling the toll-free telephone number or by using the Internet as described in the instructions included with your WHITE proxy card.**

The accompanying joint proxy statement/prospectus provides you with important information about the special meetings, the merger, and each of the proposals. **We encourage you to read the entire document carefully, in particular the Risk Factors section beginning on page 43 for a discussion of risks relevant to the merger.**

We look forward to the successful completion of the merger.

Sincerely,

Bertrand Loy

President and Chief Executive Officer

Entegris, Inc.

Guillermo Novo

President and Chief Executive Officer

Versum Materials, Inc.

Neither the U.S. Securities and Exchange Commission nor any state securities commission has approved or disapproved of the merger or the Entegris common stock to be issued in the merger or determined if this joint proxy statement/prospectus is accurate or complete. Any representation to the contrary is a criminal offense.

This joint proxy statement/prospectus is dated March 20, 2019 and is first being mailed to the stockholders of Entegris and Versum with the WHITE proxy card on or about March 22, 2019.

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Entegris, Inc.

129 Concord Road

Billerica, Massachusetts 01821

(978) 436-6500

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS

TO BE HELD ON APRIL 26, 2019

To the Stockholders of Entegris, Inc.:

Notice is hereby given that Entegris, Inc., which is referred to as Entegris, will hold a special meeting of its stockholders, which is referred to as the Entegris special meeting, at Entegris headquarters at 129 Concord Road, Billerica, Massachusetts, on April 26, 2019, beginning at 12:00 p.m., Eastern Time, for the purpose of considering and voting on the following proposals:

1. to adopt the Agreement and Plan of Merger, dated as of January 27, 2019 (as it may be amended from time to time), which is referred to as the merger agreement, by and between Versum Materials, Inc., which is referred to as Versum, and Entegris, pursuant to which Versum will merge with and into Entegris, with Entegris surviving the merger, which proposal is referred to as the Entegris merger agreement proposal;
2. to adopt the amended and restated certificate of incorporation of Entegris, which proposal is referred to as the Entegris charter proposal;
3. to approve, on an advisory (non-binding) basis, the executive officer compensation that will or may be paid to Entegris named executive officers in connection with the transactions contemplated by the merger agreement, which proposal is referred to as the Entegris compensation proposal; and
4. to approve the adjournment of the Entegris special meeting to solicit additional proxies if there are not sufficient votes at the time of the Entegris special meeting to approve the Entegris merger agreement proposal and the Entegris charter proposal or to ensure that any supplement or amendment to the accompanying joint proxy statement/prospectus is timely provided to Entegris stockholders, which proposal is referred to as the Entegris adjournment proposal.

Entegris will transact no other business at the Entegris special meeting except such business as may properly be brought before the Entegris special meeting or any adjournment or postponement thereof. The accompanying joint proxy statement/prospectus, including the merger agreement attached thereto as Annex A, contains further information with respect to these matters.

Only holders of record of Entegris common stock at the close of business on April 2, 2019, the record date for voting at the Entegris special meeting, which is referred to as the Entegris record date, are entitled to notice of and to vote at the Entegris special meeting and any adjournments or postponements thereof.

The board of directors of Entegris, which is referred to as the Entegris board of directors, has unanimously approved and declared advisable the merger agreement and the transactions contemplated by the merger agreement on the terms and subject to the conditions set forth in the merger agreement. **The Entegris board of directors unanimously recommends that Entegris stockholders vote FOR the Entegris merger agreement proposal, FOR the Entegris charter proposal, FOR the Entegris compensation proposal and FOR the Entegris adjournment proposal.**

Your vote is very important, regardless of the number of shares of Entegris common stock you own. Entegris cannot complete the transactions contemplated by the merger agreement without approval of the Entegris merger agreement proposal. Assuming a quorum is present, the approval of the Entegris merger

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agreement proposal requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on the proposal.

Whether or not you plan to attend the Entegris special meeting in person, Entegris urges you to please promptly mark, sign and date the accompanying proxy and return it in the enclosed postage-paid envelope, call the toll-free telephone number or use the Internet as described in the instructions included with the WHITE proxy card, so that your shares may be represented and voted at the Entegris special meeting. If you hold your shares through a broker, bank or other nominee in street name (instead of as a registered holder) and you wish to vote in person at the Entegris special meeting, you must obtain a legal proxy from your bank, broker or other nominee and bring the legal proxy to the meeting in order to vote in person at the Entegris special meeting. You will need to bring identification along with either your notice of special meeting or proof of stock ownership to enter the Entegris special meeting. The use of video, still photography or audio recording at the Entegris special meeting is not permitted. For the safety of attendees, all bags, packages and briefcases are subject to inspection.

If you have any questions about the merger, please contact Entegris at (978) 436-6500 or write to Entegris, Inc., Attn: Corporate Secretary, 129 Concord Road, Billerica, Massachusetts 01821.

If you have any questions about how to vote or direct a vote in respect of your shares of Entegris common stock, you may contact our proxy solicitor, MacKenzie Partners, Inc., at (800) 322-2885.

By Order of the Board of Directors,

Bertrand Loy

President and Chief Executive Officer

Billerica, Massachusetts

Dated: March 20, 2019

Your vote is important. Entegris stockholders are requested to complete, date, sign and return the enclosed WHITE proxy card in the envelope provided, which requires no postage if mailed in the United States, or to submit their votes electronically through the Internet or by telephone.

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Versum Materials, Inc.

8555 South River Parkway

Tempe, Arizona 85284

(602) 282-1000

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS

TO BE HELD ON APRIL 26, 2019

To the Stockholders of Versum Materials, Inc.:

Notice is hereby given that Versum Materials, Inc., which is referred to as Versum, will hold a special meeting of its stockholders, which is referred to as the Versum special meeting, at 8555 South River Parkway, Tempe, Arizona 85284, on April 26, 2019, beginning at 9:00 a.m., Mountain Standard Time, for the purpose of considering and voting on the following proposals:

1. to adopt the Agreement and Plan of Merger, dated as of January 27, 2019 (as it may be amended from time to time), which is referred to as the merger agreement, by and between Entegris, Inc., which is referred to as Entegris, and Versum, pursuant to which Versum will merge with and into Entegris, with Entegris surviving the merger, which proposal is referred to as the Versum merger agreement proposal;
2. to approve, on a non-binding, advisory basis, the compensation that will or may be paid to Versum's named executive officers in connection with the transactions contemplated by the merger agreement, which proposal is referred to as the Versum compensation proposal; and
3. to approve the adjournment of the Versum special meeting to solicit additional proxies if there are not sufficient votes at the time of the Versum special meeting to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to the accompanying joint proxy statement/prospectus is timely provided to Versum stockholders, which proposal is referred to as the Versum adjournment proposal.

Versum will transact no other business at the Versum special meeting except such business as may properly be brought before the Versum special meeting or any adjournment or postponement thereof. The accompanying joint proxy statement/prospectus, including the merger agreement attached thereto as Annex A, contains further information with respect to these matters.

Only holders of record of Versum common stock at the close of business on April 2, 2019, the record date for voting at the Versum special meeting, which is referred to as the Versum record date, are entitled to notice of and to vote at the Versum special meeting and any adjournments or postponements thereof.

The board of directors of Versum, which is referred to as the Versum board of directors, has unanimously approved and declared advisable the merger agreement and the transactions contemplated by the merger agreement, including

the merger, on the terms and subject to the conditions set forth in the merger agreement. **The Versum board of directors unanimously recommends that Versum stockholders vote FOR the Versum merger agreement proposal, FOR the Versum compensation proposal and FOR the Versum adjournment proposal.**

Your vote is very important, regardless of the number of shares of Versum common stock you own. Versum cannot complete the transactions contemplated by the merger agreement, including the merger, without approval of the Versum merger agreement proposal. Assuming a quorum is present, the approval of the Versum merger agreement proposal requires the affirmative vote of a majority of the outstanding shares of Versum common stock entitled to vote on the Versum merger agreement proposal.

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Whether or not you plan to attend the Versum special meeting in person, Versum urges you to please promptly mark, sign and date the accompanying proxy and return it in the enclosed postage-paid envelope, call the toll-free telephone number or use the Internet as described in the instructions included with the WHITE proxy card, so that your shares may be represented and voted at the Versum special meeting. If you hold your shares through a broker, bank or other nominee in street name (instead of as a registered holder) and you wish to vote in person at the Versum special meeting, you must obtain a legal proxy from your bank, broker or other nominee and bring the legal proxy to the meeting in order to vote in person at the Versum special meeting. You will need to bring identification along with either your notice of special meeting or proof of stock ownership to enter the Versum special meeting. The use of video, still photography or audio recording at the Versum special meeting is not permitted. For the safety of attendees, all bags, packages and briefcases are subject to inspection.

We urge you to discard any green proxy cards, which may have been sent to you by Merck KGaA, Darmstadt, Germany, who is soliciting proxies from Versum stockholders in opposition to the merger. If you previously submitted a green proxy card, we urge you to cast your vote as instructed on your WHITE proxy card, which will revoke any earlier dated proxy card that you may have submitted, including any green proxy card. Only the latest validly executed proxy that you submit will be counted.

If you have any questions about the merger, please contact Versum at (602) 282-1000 or write to Versum Materials, Inc., Attn: Corporate Secretary, 8555 South River Parkway, Tempe, Arizona 85284.

If you have any questions about how to vote or direct a vote in respect of your shares of Versum common stock, you may contact Versum's proxy solicitor, Innisfree M&A Incorporated, toll-free at (877) 456-3463 or call collect at (212) 750-5833.

By Order of the Board of Directors,

Michael W. Valente

Senior Vice President, General Counsel and Secretary

Tempe, Arizona

Dated: March 20, 2019

Your vote is important. Versum stockholders are requested to complete, date, sign and return the enclosed WHITE proxy card in the envelope provided, which requires no postage if mailed in the United States, or to submit their votes electronically through the Internet or by telephone.

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REFERENCES TO ADDITIONAL INFORMATION

This joint proxy statement/prospectus incorporates important business and financial information about Entegris and Versum from other documents that Entegris and Versum have filed with the U.S. Securities and Exchange Commission, which is referred to as the SEC, and that are contained in or incorporated by reference into this joint proxy statement/prospectus. For a listing of documents incorporated by reference into this joint proxy statement/prospectus, please see the section entitled **Where You Can Find More Information** beginning on page 213. This information is available for you free of charge to review through the SEC's website at www.sec.gov.

Any person may request a copy of this joint proxy statement/prospectus and any of the documents incorporated by reference into this joint proxy statement/prospectus or other information concerning Entegris or Versum, without charge, by written or telephonic request directed to the appropriate company or its proxy solicitor at the following contacts:

For Entegris stockholders:

For Versum stockholders:

Entegris, Inc.

Versum Materials, Inc.

129 Concord Road

8555 South River Parkway

Billerica, Massachusetts 01821

Tempe, Arizona 85284

(978) 436-6500

(602) 282-1000

Attention: Corporate Secretary

Attention: Corporate Secretary

MacKenzie Partners, Inc.

Innisfree M&A Incorporated

1407 Broadway, 27th Floor

501 Madison Avenue, 20th Floor

New York, New York 10018

New York, New York 10022

Toll-Free: (800) 322-2885

Toll-Free: (877) 456-3463

Call Collect: (212) 929-5500

Call Collect: (212) 750-5833

In order for you to receive timely delivery of the documents in advance of the special meeting of Entegris stockholders to be held on April 26, 2019, which is referred to as the Entegris special meeting, or the special meeting of Versum stockholders to be held on April 26, 2019, which is referred to as the Versum special meeting, as applicable, you must request the information no later than April 19, 2019.

The contents of the websites of the SEC, Entegris, Versum or any other entity are not being incorporated into this joint proxy statement/prospectus. The information about how you can obtain certain documents that are incorporated by reference into this joint proxy statement/prospectus at these websites is being provided only for your convenience.

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ABOUT THIS JOINT PROXY STATEMENT/PROSPECTUS

This document, which forms part of a registration statement on Form S-4 filed with the SEC by Entegris, constitutes a prospectus of Entegris under Section 5 of the Securities Act of 1933, as amended, which is referred to as the Securities Act, with respect to the shares of common stock of Entegris to be issued to Versum stockholders pursuant to the Agreement and Plan of Merger, dated as of January 27, 2019, by and between Entegris and Versum, as it may be amended from time to time, which is referred to as the merger agreement. This document also constitutes a joint proxy statement of Entegris and Versum under Section 14(a) of the Securities Exchange Act of 1934, as amended, which is referred to as the Exchange Act. It also constitutes a notice of meeting with respect to the Entegris special meeting and a notice of meeting with respect to the Versum special meeting.

Entegris has supplied all information contained or incorporated by reference into this joint proxy statement/prospectus relating to Entegris, and Versum has supplied all such information relating to Versum. Entegris and Versum have both contributed to the information related to the merger contained in this joint proxy statement/prospectus.

You should rely only on the information contained in or incorporated by reference into this joint proxy statement/prospectus. Entegris and Versum have not authorized anyone to provide you with information that is different from that contained in or incorporated by reference into this joint proxy statement/prospectus. This joint proxy statement/prospectus is dated March 20, 2019, and you should not assume that the information contained in this joint proxy statement/prospectus is accurate as of any date other than such date unless otherwise specifically provided herein.

Further, you should not assume that the information incorporated by reference into this joint proxy statement/prospectus is accurate as of any date other than the date of the incorporated document. Neither the mailing of this joint proxy statement/prospectus to Entegris stockholders or Versum stockholders nor the issuance by Entegris of shares of its common stock pursuant to the merger agreement will create any implication to the contrary.

This joint proxy statement/prospectus does not constitute an offer to sell, or a solicitation of an offer to buy, any securities, or the solicitation of a proxy, in any jurisdiction to or from any person to whom it is unlawful to make any such offer or solicitation in such jurisdiction.

All references in this joint proxy statement/prospectus to Entegris refer to Entegris, Inc., a Delaware corporation. All references in this joint proxy statement/prospectus to Versum refer to Versum Materials, Inc., a Delaware corporation. All references in this joint proxy statement/prospectus to the combined company refer to Entegris immediately following completion of the merger and the other transactions contemplated by the merger agreement. All references in this joint proxy statement/prospectus to Entegris common stock refer to the common stock of Entegris, par value \$0.01 per share, and all references in this joint proxy statement/prospectus to Versum common stock refer to the common stock of Versum, par value \$1.00 per share.

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QUESTIONS AND ANSWERS

*The following are some questions that you, as a stockholder of Entegris or a stockholder of Versum, may have regarding the merger and the other matters being considered at the special meetings of each company's stockholders, and brief answers to those questions. You are urged to carefully read this joint proxy statement/prospectus and the other documents referred to in this joint proxy statement/prospectus in their entirety because this section may not provide all the information that is important to you regarding these matters. Additional important information is contained in the annexes to, and the documents incorporated by reference into, this joint proxy statement/prospectus. You may obtain the information incorporated by reference in this joint proxy statement/prospectus, without charge, by following the instructions under the section entitled **Where You Can Find More Information** beginning on page 213.*

Q: Why am I receiving this joint proxy statement/prospectus?

A: You are receiving this joint proxy statement/prospectus because Entegris and Versum have agreed to combine their companies in a merger of equals structured through a merger of Versum with and into Entegris, with Entegris as the surviving corporation. The merger agreement governs the terms of the business combination and merger of Entegris and Versum, which is referred to as the merger, and is attached to this joint proxy statement/prospectus as Annex A.

In order to complete the merger, among other things:

Entegris stockholders must adopt the merger agreement in accordance with the Delaware General Corporation Law, which is referred to as the DGCL, which proposal is referred to as the Entegris merger agreement proposal; and

Versum stockholders must adopt the merger agreement in accordance with the DGCL, which proposal is referred to as the Versum merger agreement proposal.

Entegris is holding a special meeting of its stockholders, which is referred to as the Entegris special meeting, to obtain approval of the Entegris merger agreement proposal. Entegris stockholders will also be asked to adopt Entegris amended and restated certificate of incorporation, which proposal is referred to as the Entegris charter proposal, to approve, on an advisory (non-binding) basis, the merger-related executive officer compensation payments that will or may be paid by Entegris to its named executive officers in connection with the merger, which proposal is referred to as the Entegris compensation proposal, and to approve the proposal to adjourn the Entegris special meeting to solicit additional proxies if there are not sufficient votes at the time of the Entegris special meeting to approve the Entegris merger agreement proposal and the Entegris charter proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Entegris stockholders, which proposal is referred to as the Entegris adjournment proposal.

Versum is holding a special meeting of its stockholders, which is referred to as the Versum special meeting, to obtain approval of the Versum merger agreement proposal. Versum stockholders will also be asked to approve, on an advisory (non-binding) basis, the merger-related executive officer compensation payments that will or may be paid by Versum to its named executive officers in connection with the merger, which proposal is referred to as the Versum

compensation proposal, and to approve the proposal to adjourn the Versum special meeting to solicit additional proxies if there are not sufficient votes at the time of the Versum special meeting to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Versum stockholders, which proposal is referred to as the Versum adjournment proposal.

Your vote is very important, regardless of the number of shares that you own. The approval of the Entegris merger agreement proposal and the approval of the Versum merger agreement proposal are conditions to the

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obligations of Versum and Entegris to complete the merger. None of the approvals of the Entegris charter proposal, the Entegris compensation proposal, the Versum compensation proposal, the Entegris adjournment proposal or the Versum adjournment proposal are conditions to the obligations of Versum or Entegris to complete the merger.

Q: When and where will each of the special meetings take place?

A: The Entegris special meeting will be held at Entegris headquarters at 129 Concord Road, Billerica, Massachusetts, on April 26, 2019, at 12:00 p.m., Eastern Time.

The Versum special meeting will be held at 8555 South River Parkway, Tempe, Arizona 85284, on April 26, 2019, at 9:00 a.m., Mountain Standard Time.

If you choose to vote your shares in person at your respective company's special meeting, please bring required documentation in accordance with the section entitled **The Entegris Special Meeting Attending the Entegris Special Meeting** beginning on page 63, with respect to the Entegris special meeting, and the section entitled **The Versum Special Meeting Attending the Versum Special Meeting** beginning on page 74, with respect to the Versum special meeting. The use of video, still photography or audio recording at each of the special meetings is not permitted. For the safety of attendees, all bags, packages and briefcases are subject to inspection.

Even if you plan to attend your respective company's special meeting, Versum and Entegris recommend that you vote your shares in advance as described below so that your vote will be counted if you later decide not to or become unable to attend the applicable special meeting. Shares held in street name may be voted in person by you only if you obtain a signed legal proxy from your bank, broker or other nominee giving you the right to vote the shares.

Q: Does my vote matter?

A: Yes, your vote is very important, regardless of the number of shares that you own. The merger cannot be completed unless the merger agreement is adopted by Versum stockholders and by Entegris stockholders. For Entegris stockholders, if you do not return or submit your proxy or vote at the special meeting as provided in this joint proxy statement/prospectus, the effect will be the same as a vote **AGAINST** the Entegris merger agreement proposal and the Entegris charter proposal, and will have no effect on the Entegris compensation proposal or the Entegris adjournment proposal. The board of directors of Entegris, which is referred to as the Entegris board of directors, unanimously recommends that you vote **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal.

For Versum stockholders, if you do not return or submit your proxy or vote at the special meeting as provided in this joint proxy statement/prospectus, the effect will be the same as a vote **AGAINST** the Versum merger agreement proposal, and will have no effect on the Versum compensation proposal or the Versum adjournment proposal. The Versum board of directors, which is referred to as the Versum board of directors, unanimously recommends that you vote **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal.

Q: What will I receive if the merger is completed?

A: If the merger is completed, each share of Versum common stock outstanding at the effective time of the merger will be converted into the right to receive 1.120 shares of Entegris common stock. Each Versum stockholder will receive cash for any fractional shares of Entegris common stock that such stockholder

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would otherwise receive in the merger. Any cash amounts to be received by a Versum stockholder in respect of fractional shares will be aggregated and rounded to the nearest whole cent. As referred to in this joint proxy statement/prospectus, the effective time means the date and time when the certificate of merger has been duly filed with and accepted by the Secretary of State of the State of Delaware, or such later date and time as may be agreed by Entegris and Versum in writing and specified in the certificate of merger.

If the merger is completed, Entegris stockholders' shares of Entegris common stock will, after the effective time, constitute shares of the combined company.

Because Entegris will issue a fixed number of shares of Entegris common stock in exchange for each share of Versum common stock, the value of the merger consideration that Versum stockholders will receive in the merger will depend on the market price of shares of Entegris common stock at the time the merger is completed. The market price of shares of Entegris common stock that Versum stockholders receive after the merger is completed could be greater than, less than or the same as the market price of shares of Entegris common stock on the date of this joint proxy statement/prospectus or at the time of the special meetings. Accordingly, you should obtain current market quotations for Entegris common stock and Versum common stock before deciding how to vote with respect to the adoption of the merger agreement. Entegris common stock is traded on the NASDAQ Global Select market, which is referred to as NASDAQ, and Versum common stock is traded on the New York Stock Exchange, which is referred to as the NYSE, under the symbols ENTG and VSM, respectively. Shares of common stock of the combined company are expected to trade on NASDAQ or the NYSE under the symbol ENTG after completion of the merger. Stockholders will be informed in conjunction with the closing on which exchange the shares will trade.

For more information regarding the merger consideration to be received by Versum stockholders if the merger is completed, see the section entitled **The Merger Agreement Merger Consideration** beginning on page 128.

Q: Will Entegris equity awards be affected by the merger?

A: Entegris equity awards will remain equity awards relating to shares of Entegris common stock. Entegris equity awards will continue to vest in accordance with the terms of the award agreements applicable to such Entegris equity awards. However, the Entegris board of directors (or the applicable committee thereof) may determine to treat the merger as a change in control or term of similar meaning for purposes of the Entegris compensation and benefit plans, including Entegris equity awards, which determination may result in certain double trigger benefits under such plans upon a qualifying termination of employment subsequent to the effective time, but in no event may such determination result in the single trigger payment of benefits under such plans upon or in connection with the merger. Entegris may amend any outstanding Entegris stock options, each of which is referred to as an Entegris option, and Entegris time-based restricted stock units, each of which is referred to as an Entegris RSU award, granted prior to January 27, 2019 to provide for, and may include in Entegris options, Entegris RSU awards and Entegris performance-based restricted stock units, each of which is referred to as an Entegris PSU award, granted in fiscal year 2019, double-trigger vesting upon certain qualifying terminations of employment.

Q: Will Versum equity awards be affected by the merger?

A: At the effective time, each option to purchase shares of Versum common stock, each of which is referred to as a Versum option, that is outstanding immediately prior to the effective time will vest and be converted into an

option, each of which is referred to as a converted option, to purchase a number of shares of Entegris common stock equal to the product of (i) the number of shares of Versum common stock subject to the Versum option immediately prior to the effective time multiplied by (ii) the exchange ratio (rounded down to the nearest whole share number), with a per share exercise price equal to (a) the per share exercise price applicable to such Versum option immediately prior to the effective time divided by (b) the exchange ratio

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(rounded up to the nearest whole cent). Except as noted in the immediately preceding sentence, each converted option will continue to be governed by the same terms and conditions as were applicable to the Versum option immediately prior to the effective time.

At the effective time, each Versum time-based restricted stock unit award (including equity-based awards granted by Air Products and Chemicals, Inc. and its consolidated subsidiaries, which is referred to as Air Products, that converted to Versum RSU awards in connection with the spin-off of Versum from Air Products), each of which is referred to as a Versum RSU award, and Versum performance-based restricted stock unit award (including market-based performance stock units, each of which is referred to as a Versum MSU and performance-based performance stock units, each of which is referred to as a Versum PRSU) (collectively, Versum MSUs and Versum PRSUs are referred to as Versum PSU awards), relating to Versum common stock that is outstanding immediately prior to the effective time will be converted into a restricted stock unit award, each of which is referred to as a converted RSU award, relating to a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock subject to the Versum RSU award or Versum PSU award immediately prior to the effective time multiplied by (ii) the exchange ratio. For Versum PSU awards, the number of shares in clause (i) of the immediately preceding sentence will be determined based on actual performance through a shortened performance period ending immediately prior to the effective time. The converted RSU awards will vest and settle on terms (including acceleration events) at least as favorable as were applicable to the corresponding Versum RSU award or Versum PSU award immediately prior to the effective time, except that converted RSU awards relating to Versum PSU awards will vest solely based on continued service. Each converted RSU award will vest in full on the original vesting date or if the holder experiences a covered termination following the effective time and prior to the original vesting date, on the date of such covered termination. For employees of Versum and its subsidiaries, a covered termination means a termination by Versum or one of its subsidiaries or their successor in interest without cause or, to the extent good reason rights are provided for in the award agreement (or employment or similar agreement) applicable to the corresponding Versum RSU award or Versum PSU award, a resignation by the employee for good reason (as such terms are defined in the applicable Versum agreement), in either case, during the 24-month period following the effective time. For non-employee directors of Versum, a covered termination means the termination of their service as a director for any reason at or following the effective time.

At the effective time, each deferred stock unit award relating to shares of Versum common stock, each of which is referred to as a Versum DSU award, will vest and be converted into the right to receive a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock covered by the Versum DSU award immediately prior to the effective time by (ii) the exchange ratio, with such shares distributed to the holder within 30 business days following the effective time.

Q: What will happen to the Entegris Amended and Restated Employee Stock Purchase Plan?

A: The Entegris Amended and Restated Employee Stock Purchase Plan will remain in effect in accordance with its terms.

Q: How does the board of directors of Entegris recommend that I vote at the Entegris special meeting?

A: The Entegris board of directors unanimously recommends that you vote **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris

adjournment proposal.

In considering the recommendations of the Entegris board of directors, Entegris stockholders should be aware that Entegris directors and executive officers have interests in the merger that are different from, or in addition to, their interests as Entegris stockholders. These interests may include, among others, the payment of severance benefits and acceleration of outstanding Entegris equity awards upon a qualifying termination

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of employment, and the payment of retention bonuses. For a more complete description of these interests, see the information provided in the section entitled **Interests of Entegris Directors and Executive Officers in the Merger** beginning on page 170.

Q: How does the board of directors of Versum recommend that I vote at the Versum special meeting?

A: The Versum board of directors unanimously recommends that you vote **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal. In considering the recommendations of the Versum board of directors, Versum stockholders should be aware that Versum directors and executive officers have interests in the merger that are different from, or in addition to, their interests as Versum stockholders. These interests may include, among others, the payment of severance benefits and acceleration of outstanding Versum equity awards upon certain terminations of employment or service, the payment of retention bonuses and the combined company's agreement to indemnify Versum directors and officers against certain claims and liabilities. For a more complete description of these interests, see the information provided in the section entitled **Interests of Versum's Directors and Executive Officers in the Merger** beginning on page 176.

Q: Who is entitled to vote at the Entegris special meeting?

A: The record date for the Entegris special meeting is April 2, 2019, which is referred to as the Entegris record date. All holders of shares of Entegris common stock who held shares at the close of business on the Entegris record date are entitled to receive notice of, and to vote at, the Entegris special meeting. Each such holder of Entegris common stock is entitled to cast one vote on each matter properly brought before the Entegris special meeting for each share of Entegris common stock that such holder owned of record as of the record date. Physical attendance at the special meeting is not required to vote. See below and the section entitled **The Entegris Special Meeting Methods of Voting** beginning on page 62 for instructions on how to vote your shares without attending the Entegris special meeting.

Entegris is commencing its solicitation of proxies on or about March 20, 2019, which is before the Entegris record date. Entegris will continue to solicit proxies until the date of the Entegris special meeting. Each holder of shares of Entegris common stock of record on April 2, 2019 who has not yet received this joint proxy statement/prospectus will receive this joint proxy statement/prospectus and have the opportunity to vote on the matters described in this joint proxy statement/prospectus. Proxies delivered prior to the Entegris record date will be valid and effective so long as the holder providing the proxy is a holder on the Entegris record date. If you are not a holder of record on the Entegris record date, any proxy you deliver will not be counted. If you deliver a proxy prior to the Entegris record date and remain a holder on the Entegris record date, you do not need to deliver another proxy after the Entegris record date. If you deliver a proxy prior to the Entegris record date and do not revoke that proxy, your proxy will be deemed to cover the number of shares of Entegris common stock you own on the Entegris record date even if that number is different from the number of shares of Entegris common stock you owned when you executed and delivered your WHITE proxy card.

Q: Who is entitled to vote at the Versum special meeting?

- A: The record date for the Versum special meeting is April 2, 2019, which is referred to as the Versum record date. All holders of shares of Versum common stock who held shares at the close of business on the Versum record date are entitled to receive notice of, and to vote at, the Versum special meeting. Each such holder of Versum common stock is entitled to cast one vote on each matter properly brought before the Versum special meeting for each share of Versum common stock that such holder owned of record as of the record date. Physical attendance at the special meeting is not required to vote. See below and the section entitled **The Versum Special Meeting Methods of Voting** beginning on page 72 for instructions on how to vote your shares without attending the Versum special meeting.

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Versum is commencing its solicitation of proxies on or about March 20, 2019, which is before the Versum record date. Versum will continue to solicit proxies until the date of the Versum special meeting. Each holder of shares of Versum common stock of record on April 2, 2019 who has not yet received this joint proxy statement/prospectus will receive this joint proxy statement/prospectus and have the opportunity to vote on the matters described in this joint proxy statement/prospectus. Proxies delivered prior to the Versum record date will be valid and effective so long as the holder providing the proxy is a holder on the Versum record date. If you are not a holder of record on the Versum record date, any proxy you deliver will not be counted. If you deliver a proxy prior to the Versum record date and remain a holder on the Versum record date, you do not need to deliver another proxy after the Versum record date. If you deliver a proxy prior to the Versum record date and do not revoke that proxy, your proxy will be deemed to cover the number of shares of Versum common stock you own on the Versum record date even if that number is different from the number of shares of Versum common stock you owned when you executed and delivered your WHITE proxy card.

Q: What is a proxy?

A: A stockholder's legal designation of another person to vote shares of such stockholder's common stock at a special meeting is referred to as a proxy. The document used to designate a proxy to vote your shares of Entegris common stock or Versum common stock, as applicable, is referred to as a WHITE proxy card.

Q: How many votes do I have for the Entegris special meeting?

A: Each Entegris stockholder is entitled to one vote for each share of Entegris common stock held of record as of the close of business on the Entegris record date. As of the close of business on March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, there were 135,513,636 outstanding shares of Entegris common stock.

Q: How many votes do I have for the Versum special meeting?

A: Each Versum stockholder is entitled to one vote for each share of Versum common stock held of record as of the close of business on the Versum record date. As of the close of business on March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, there were 109,143,954 outstanding shares of Versum common stock.

Q: What constitutes a quorum for the Entegris special meeting?

A: The holders of a majority of the issued and outstanding shares of Entegris common stock entitled to vote at the Entegris special meeting must be represented at the Entegris special meeting in person or by proxy in order to constitute a quorum.

Q: What constitutes a quorum for the Versum special meeting?

A: The holders of a majority of the shares of Versum common stock entitled to vote at the Versum special meeting must be represented at the Versum special meeting in person or by proxy in order to constitute a quorum.

Q: Where will the common stock of the combined company that I receive in the merger be publicly traded?

A: The shares of common stock of the combined company to be issued in the merger will be listed for trading on NASDAQ or the NYSE under the symbol ENTG. Stockholders will be informed in conjunction with the closing on which exchange the shares will trade.

Table of Contents**Q: What happens if the merger is not completed?**

A: If the merger agreement is not adopted by Versum stockholders or by Entegris stockholders or if the merger is not completed for any other reason, Versum stockholders will not receive any merger consideration for their shares of Versum common stock in connection with the merger. Instead, Versum will remain an independent public company and Versum common stock will continue to be listed and traded on the NYSE, and Entegris common stock will continue to be traded on NASDAQ, and Entegris will not complete the share issuance pursuant to the merger agreement or amend and restate its certificate of incorporation as contemplated by the Entegris merger agreement proposal and the Entegris charter proposal, respectively. If the merger agreement is terminated under specified circumstances, Versum may be required to pay Entegris a termination fee of \$140 million. If the merger agreement is terminated under other specified circumstances, Entegris may be required to pay Versum a termination fee of \$155 million. See the section entitled **The Merger Agreement Termination Fees** beginning on page 155 for a more detailed discussion of the termination fees.

Q: What is a broker non-vote ?

A: Under the NYSE and NASDAQ rules, banks, brokers and other nominees may use their discretion to vote uninstructed shares (i.e., shares of record held by banks, brokers or other nominees, but with respect to which the beneficial owner of such shares has not provided instructions on how to vote on a particular proposal) with respect to matters that are considered to be routine, but not with respect to non-routine matters. All of the proposals currently scheduled for consideration at the Entegris special meeting and the Versum special meeting are non-routine matters.

A broker non-vote occurs on an item when (a) a bank, broker or other nominee has discretionary authority to vote on one or more proposals to be voted on at a meeting of stockholders, but is not permitted to vote on other proposals without instructions from the beneficial owner of the shares and (b) the beneficial owner fails to provide the bank, broker or other nominee with such instructions. Because none of the proposals currently scheduled to be voted on at either the Entegris special meeting or the Versum special meeting are routine matters for which brokers may have discretionary authority to vote, Entegris and Versum do not expect there to be any broker non-votes at the Entegris special meeting or the Versum special meeting.

Q: What stockholder vote is required for the approval of each proposal at the Entegris special meeting? What will happen if I fail to vote or abstain from voting on each proposal at the Entegris special meeting?

A: *Entegris Proposal 1: Entegris merger agreement proposal.* Assuming a quorum is present, the adoption of the merger agreement by Entegris stockholders requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on such proposal. Accordingly, an Entegris stockholder's abstention from voting, a broker non-vote or the failure of an Entegris stockholder to vote (including the failure of an Entegris stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have the same effect as a vote **AGAINST** the Entegris merger agreement proposal.

Entegris Proposal 2: Entegris charter proposal. Assuming a quorum is present, the adoption of the amended and restated certificate of incorporation by Entegris stockholders requires the affirmative vote of a majority of the

outstanding shares of Entegris common stock entitled to vote on such proposal. Accordingly, an Entegris stockholder's abstention from voting, a broker non-vote or the failure of an Entegris stockholder to vote (including the failure of an Entegris stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have the same effect as a vote **AGAINST** the Entegris charter proposal.

Entegris Proposal 3: Entegris compensation proposal. Assuming a quorum is present, approval of the Entegris compensation proposal requires the affirmative vote of a majority of votes properly cast on the

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proposal at the Entegris special meeting. Accordingly, an Entegris stockholder's abstention from voting, a broker non-vote or an Entegris stockholder's other failure to vote (including the failure of an Entegris stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have no effect on the outcome of the Entegris compensation proposal.

Entegris Proposal 4: Entegris adjournment proposal. The Entegris special meeting may be adjourned to solicit additional proxies if there are not sufficient votes at the time of the Entegris special meeting to approve the Entegris merger agreement proposal and the Entegris charter proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Entegris stockholders. Whether or not a quorum is present, the approval of the holders of a majority of the voting shares of Entegris common stock present or represented at the Entegris special meeting is required to adjourn the Entegris special meeting. An Entegris stockholder's abstention from voting will have the same effect as a vote **AGAINST** the Entegris adjournment proposal, while a broker non-vote or the failure of an Entegris stockholder to vote (including the failure of an Entegris stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have no effect on the Entegris adjournment proposal.

Q: What stockholder vote is required for the approval of each proposal at the Versum special meeting? What will happen if I fail to vote or abstain from voting on each proposal at the Versum special meeting?

A: *Versum Proposal 1: Versum merger agreement proposal.* Assuming a quorum is present, the adoption of the merger agreement by Versum stockholders requires the affirmative vote of a majority of the outstanding shares of Versum common stock entitled to vote thereon. Accordingly, a Versum stockholder's abstention from voting, a broker non-vote or the failure of a Versum stockholder to vote (including the failure of a Versum stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have the same effect as a vote **AGAINST** the Versum merger agreement proposal.

Versum Proposal 2: Versum compensation proposal. Assuming a quorum is present, approval of the Versum compensation proposal requires the affirmative vote of a majority of the votes cast at the Versum special meeting on this proposal. Accordingly, a Versum stockholder's abstention from voting, a broker non-vote or the failure of a Versum stockholder to vote (including the failure of a Versum stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have no effect on the Versum compensation proposal.

Versum Proposal 3: Versum adjournment proposal. The Versum special meeting may be adjourned to solicit additional proxies if there are not sufficient votes at the time of the Versum special meeting to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Versum stockholders. Whether or not a quorum is present, the affirmative vote of a majority of the votes entitled to be cast who are present in person or represented by proxy at the Versum special meeting is required to adjourn the Versum special meeting. Accordingly, a Versum stockholder's abstention from voting will have the same effect as a vote **AGAINST** the Versum adjournment proposal, while a broker non-vote or the failure of a Versum stockholder to vote (including the failure of a Versum stockholder who holds shares in street name through a bank, broker or other nominee to give voting instructions to that bank, broker or other nominee) will have no effect on the Versum adjournment proposal. The chairman of the Versum special meeting may also adjourn the Versum special meeting, whether or not there is a quorum.

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Q: Why am I being asked to consider and vote on a proposal to approve, by non-binding, advisory vote, merger-related compensation arrangements for Entegris or Versum's named executive officers (i.e., the Entegris compensation proposal and the Versum compensation proposal, respectively)?

A: Under the SEC rules, Entegris and Versum are each required to seek a non-binding, advisory vote of their respective stockholders with respect to the compensation that may be paid or become payable to Entegris or Versum's respective named executive officers that is based on or otherwise relates to the merger, also known as golden parachute compensation.

Q: What happens if Entegris stockholders or Versum stockholders do not approve, by non-binding, advisory vote, merger-related compensation arrangements for Entegris or Versum's named executive officers (i.e., the Entegris compensation proposal and the Versum compensation proposal, respectively)?

A: The votes on the proposals to approve the merger-related compensation arrangements for each of Entegris and Versum's named executive officers are separate and apart from the votes to approve the other proposals being presented at the Entegris special meeting and the Versum special meeting. Because the votes on the proposals to approve the merger-related executive compensation are advisory in nature, they will not be binding upon Entegris, Versum or the combined company. Accordingly, the merger-related compensation may be paid to Entegris and Versum's named executive officers to the extent payable in accordance with the terms of their compensation agreements and arrangements even if Entegris or Versum's respective stockholders do not approve the proposals to approve the merger-related executive compensation.

Q: What if I hold shares in both Entegris and Versum?

A: If you are both an Entegris stockholder and a Versum stockholder, you will receive two separate packages of proxy materials. A vote cast as an Entegris stockholder will not count as a vote cast as a Versum stockholder, and a vote cast as a Versum stockholder will not count as a vote cast as an Entegris stockholder. **Therefore, please submit separate proxies for your shares of Entegris common stock and your shares of Versum common stock.**

Q: How can I vote my shares in person at my respective special meeting?

A: *Record Holders.* Shares held directly in your name as the stockholder of record of Entegris or Versum may be voted in person at the Entegris special meeting or the Versum special meeting, as applicable. If you choose to vote your shares in person at the respective special meeting, please bring required documentation in accordance with the section entitled **The Entegris Special Meeting Attending the Entegris Special Meeting** beginning on page 63, with respect to the Entegris special meeting, and the section entitled **The Versum Special Meeting Attending the Versum Special Meeting** beginning on page 74, with respect to the Versum special meeting.

Shares in street name. Shares held in street name may be voted in person by you only if you obtain a signed legal proxy from your bank, broker or other nominee giving you the right to vote the shares. If you choose to vote your

shares in person at the Entegris special meeting or Versum special meeting, as applicable, please bring required documentation in accordance with the section entitled **The Entegris Special Meeting Attending the Entegris Special Meeting** beginning on page 63, with respect to the Entegris special meeting, and the section entitled **The Versum Special Meeting Attending the Versum Special Meeting** beginning on page 74, with respect to the Versum special meeting.

Even if you plan to attend the Entegris special meeting or the Versum special meeting, as applicable, Entegris and Versum recommend that you vote your shares in advance as described below so that your vote will be counted if you later decide not to or become unable to attend the respective special meeting. The use of video, still photography or audio recording is not permitted at either special meeting. For the safety of attendees, all bags, packages and briefcases are subject to inspection. Your compliance is appreciated.

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Additional information on attending the special meetings can be found under the section entitled **The Entegris Special Meeting** on page 59 and under the section entitled **The Versum Special Meeting** on page 70.

Q: How can I vote my shares without attending my respective special meeting?

A: Whether you hold your shares directly as the stockholder of record of Entegris or Versum or beneficially in street name, you may direct your vote by proxy without attending the Entegris special meeting or the Versum special meeting, as applicable. You can vote by proxy over the Internet, or by telephone or by mail by following the instructions provided in the enclosed WHITE proxy card. Please note that if you hold shares beneficially in street name, you should follow the voting instructions provided by your bank, broker or other nominee.

Additional information on voting procedures can be found under the section entitled **The Entegris Special Meeting** on page 59 and under the section entitled **The Versum Special Meeting** on page 70.

Q: What is the difference between holding shares as a stockholder of record and as a beneficial owner of shares held in street name?

A: If your shares of common stock in Entegris or Versum are registered directly in your name with EQ Shareowner Services, Entegris transfer agent, or Broadridge Corporate Issuer Solutions, Inc., Versum's transfer agent, you are considered the stockholder of record with respect to those shares. As the stockholder of record, you have the right to vote, or to grant a proxy for your vote directly to Entegris or Versum, as applicable, or to a third party to vote, at the respective special meeting.

If your shares of common stock in Entegris or Versum are held by a bank, broker or other nominee, you are considered the beneficial owner of shares held in street name, and your bank, broker or other nominee is considered the stockholder of record with respect to those shares. Your bank, broker or other nominee will send you, as the beneficial owner, a package describing the procedure for voting your shares. You should follow the instructions provided by them to vote your shares. You are invited to attend the Entegris special meeting or the Versum special meeting, as applicable, however, you may not vote these shares in person at the respective special meeting unless you obtain a signed legal proxy, executed in your favor, from your bank, broker or other nominee that holds your shares, giving you the right to vote the shares at the applicable special meeting.

Q: If my shares of Entegris common stock or Versum common stock are held in street name by my bank, broker or other nominee, will my bank, broker or other nominee automatically vote those shares for me?

A: No. Your bank, broker or other nominee will only be permitted to vote your shares of Entegris common stock or Versum common stock, as applicable, if you instruct your bank, broker or other nominee how to vote. You should follow the procedures provided by your bank, broker or other nominee regarding the voting of your shares. Under the rules of the NYSE and NASDAQ, banks, brokers and other nominees who hold shares of Entegris common stock or Versum common stock in street name for their customers have authority to vote on routine proposals when they have not received instructions from beneficial owners. However, banks, brokers and

other nominees are prohibited from exercising their voting discretion with respect to non-routine matters, which include all the proposals currently scheduled to be considered and voted on at each of the Entegris and Versum special meetings. As a result, absent specific instructions from the beneficial owner of such shares, banks, brokers and other nominees are not empowered to vote such shares.

For Entegris stockholders, the effect of not instructing your bank, broker or other nominee how you wish to vote your shares will be the same as a vote **AGAINST** the Entegris merger agreement proposal and the

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Entegris charter proposal, but will not be counted as **FOR** or **AGAINST** and, assuming a quorum is present at the Entegris special meeting, will have no effect on, the Entegris compensation proposal or the Entegris adjournment proposal.

For Versum stockholders, the effect of not instructing your bank, broker or other nominee how you wish to vote your shares will be the same as a vote **AGAINST** the Versum merger agreement proposal, but will not be counted as **FOR** or **AGAINST** and, assuming a quorum is present at the Versum special meeting, will have no effect on, the Versum compensation proposal or the Versum adjournment proposal.

Q: What should I do if I receive more than one set of voting materials for the same special meeting?

A: If you hold shares of Entegris common stock or Versum common stock in street name and also directly in your name as a stockholder of record or otherwise, or if you hold shares of Entegris common stock or Versum common stock in more than one brokerage account, you may receive more than one set of voting materials relating to the same special meeting.

Record Holders. For shares held directly, please complete, sign, date and return each WHITE proxy card (or cast your vote by telephone or Internet as provided on each WHITE proxy card) or otherwise follow the voting instructions provided in this joint proxy statement/prospectus in order to ensure that all of your shares of Entegris common stock or Versum common stock are voted.

Shares in street name. For shares held in street name through a bank, broker or other nominee, you should follow the procedures provided by your bank, broker or other nominee to vote your shares.

We urge you to discard any green proxy cards and disregard any related solicitation materials, which may have been sent to you by Merck KGaA, Darmstadt, Germany, which is referred to as Merck, who is soliciting proxies from Versum stockholders in opposition to the merger. If you previously submitted a green proxy card, we urge you to cast your vote as instructed on your WHITE proxy card, which will revoke any earlier dated proxy card that you may have submitted, including any green proxy card. Only the latest dated proxy you submit will be counted.

Q: If a stockholder gives a proxy, how are the shares of Entegris or Versum common stock voted?

A: Regardless of the method you choose to vote, the individuals named on the enclosed WHITE proxy card will vote your shares of Entegris common stock or Versum common stock, as applicable, in the way that you indicate. When completing the Internet or telephone processes or the WHITE proxy card, you may specify whether your shares of Entegris common stock or Versum common stock, as applicable, should be voted for or against, or abstain from voting on, all, some or none of the specific items of business to come before the respective special meetings.

Q: How will my shares of Entegris common stock be voted if I return a blank proxy?

A: If you sign, date and return your WHITE proxy card and do not indicate how you want your shares of Entegris common stock to be voted, then your shares of Entegris common stock will be voted **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal.

Q: How will my shares of Versum common stock be voted if I return a blank proxy?

A: If you sign, date and return your WHITE proxy card and do not indicate how you want your shares of Versum common stock to be voted, then your shares of Versum common stock will be voted **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal.

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Q: I received a green proxy card. Should I sign and mail it?

A: No. We urge you to discard any green proxy card and disregard any related solicitation materials, which may have been sent to you by Merck, who is soliciting proxies from Versum stockholders in opposition to the merger. If you previously submitted a green proxy card, we urge you to cast your vote as instructed on your WHITE proxy card, which will revoke any earlier dated proxy card that you submitted, including any green proxy card. Only the latest dated proxy you submit will be counted. If you have any questions or need assistance voting, please call Innisfree M&A Incorporated, which is referred to as Innisfree, Versum's proxy solicitor, toll-free at (877) 456-3463 or call collect at (212) 750-5833.

Q: Can I change my vote after I have submitted my proxy?

A: Any stockholder giving a proxy has the right to revoke it, including any green proxy card you may have previously submitted, before the proxy is voted at the applicable special meeting by doing any of the following:

subsequently submitting a new proxy including a WHITE proxy card (including by submitting a proxy via the Internet or telephone);

giving written notice of your revocation to Entegris's corporate secretary or Versum's corporate secretary, as applicable; or

revoking your proxy and voting in person at the applicable special meeting.

Execution or revocation of a proxy will not in any way affect your right to attend the applicable special meeting and vote in person. Written notices of revocation and other communications with respect to the revocation of proxies should be addressed:

if you are an Entegris stockholder, to:

if you are a Versum stockholder, to:

Entegris, Inc.
Attn: Corporate Secretary
129 Concord Road,
Billerica, Massachusetts 01821

Versum Materials, Inc.
Attn: Corporate Secretary
8555 South River Parkway,
Tempe, Arizona 85284

For more information, see the section entitled **The Entegris Special Meeting Revocability of Proxies** beginning on page 63 and the section entitled **The Versum Special Meeting Revocability of Proxies** beginning on page 73, as applicable.

Q: If I hold my shares in street name, can I change my voting instructions after I have submitted voting instructions to my bank, broker or other nominee?

If your shares are held in the name of a bank, broker or other nominee and you previously provided voting instructions to your bank, broker or other nominee, you should follow the instructions provided by your bank, broker or other nominee to revoke or change your voting instructions.

Q: Where can I find the voting results of the special meetings?

A: The preliminary voting results for each special meeting will be announced at that special meeting. In addition, within four business days following certification of the final voting results, each of Entegris and Versum intends to file the final voting results of its respective special meeting with the SEC on a Current Report on Form 8-K.

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Q: If I do not favor the merger, what are my rights?

A: Neither Entegris stockholders nor Versum stockholders are entitled to dissenters' rights under the DGCL. If they are not in favor of the merger, Entegris stockholders may vote against the Entegris merger agreement proposal or the Entegris charter proposal, and Versum stockholders may vote against the Versum merger agreement proposal. For more information, see the section entitled **No Appraisal Rights** beginning on page 204. Information about how Entegris stockholders may vote on the proposals being considered in connection with the merger can be found under the section entitled **The Entegris Special Meeting** beginning on page 59. Information about how Versum stockholders may vote on the proposals being considered in connection with the merger can be found under the section entitled **The Versum Special Meeting** beginning on page 70.

Q: Are there any risks that I should consider in deciding whether to vote for the approval of the Entegris merger agreement proposal, the approval of the Entegris charter proposal or the approval of the Versum merger agreement proposal?

A: Yes. You should read and carefully consider the risk factors set forth in the section entitled **Risk Factors** beginning on page 43. You also should read and carefully consider the risk factors of Entegris and Versum contained in the documents that are incorporated by reference into this joint proxy statement/prospectus.

Q: What happens if I sell my shares of Entegris common stock or Versum common stock after the respective record date but before the respective special meeting?

A: The Entegris record date is earlier than the date of the Entegris special meeting, and the Versum record date is earlier than the date of the Versum special meeting. If you transfer your shares of Entegris common stock or Versum common stock after the respective record date but before the applicable special meeting, you will, unless special arrangements are made, retain your right to vote at the applicable special meeting.

Q: Who will solicit and pay the cost of soliciting proxies?

A: Entegris has engaged MacKenzie Partners, Inc., which is referred to as MacKenzie, to assist in the solicitation of proxies for the Entegris special meeting. Entegris estimates that it will pay MacKenzie a fee of approximately \$25,000, plus reimbursement of reasonable expenses. Entegris has agreed to indemnify MacKenzie against various liabilities and expenses that relate to or arise out of its solicitation of proxies (subject to certain exceptions). Versum has engaged Innisfree to assist in the solicitation of proxies for the Versum special meeting. Versum estimates that it will pay Innisfree a fee of approximately \$750,000, plus reimbursement for certain out-of-pocket fees and expenses. Versum has agreed to indemnify Innisfree against various liabilities and expenses that relate to or arise out of its solicitation of proxies (subject to certain exceptions). Entegris and Versum also may be required to reimburse banks, brokers and other custodians, nominees and fiduciaries or their respective agents for their expenses in forwarding proxy materials to beneficial owners of Entegris common stock and Versum common stock, respectively. Entegris' directors, officers and employees and Versum's directors, officers and employees also may solicit proxies by telephone, by electronic means or in person. They will not be

paid any additional amounts for soliciting proxies.

Q: What are the material United States federal income tax consequences of the merger to Versum stockholders?

A: The merger is intended to qualify as a reorganization within the meaning of Section 368(a) of the Internal Revenue Code of 1986, as amended, which is referred to as the Code, and it is a condition to the respective obligations of Entegris and Versum to complete the merger that each of Entegris and Versum receives a legal opinion to that effect. Accordingly, holders of Versum common stock are not expected to recognize

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any gain or loss for U.S. federal income tax purposes on the exchange of shares of Versum common stock for shares of Entegris common stock in the merger, except with respect to any cash received instead of fractional shares of Entegris common stock.

For further information, see the section entitled **Material U.S. Federal Income Tax Consequences** beginning on page 183.

Q: When is the merger expected to be completed?

A: Subject to the satisfaction or waiver of the closing conditions described under the section entitled **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152, including the adoption of the merger agreement by both Entegris stockholders and Versum stockholders, the merger is expected to close in the second half of 2019. However, neither Entegris nor Versum can predict the actual date on which the merger will be completed, or if the merger will be completed at all, because completion of the merger is subject to conditions and factors outside the control of both companies. Entegris and Versum hope to complete the merger as soon as reasonably practicable. See also the section entitled **The Merger Regulatory Approvals** beginning on page 122.

Q: What are the conditions to completion of the merger?

A: The merger is subject to a number of conditions to closing as specified in the merger agreement. These closing conditions include, among others, approval for listing on NASDAQ or the NYSE of the shares of Entegris common stock to be issued pursuant to the merger agreement, the expiration or earlier termination of any applicable waiting period, the receipt of approvals under U.S. and foreign antitrust and competition laws in China, Germany, Japan, South Korea, and Taiwan, the absence of governmental restraints or prohibitions preventing the consummation of the merger, the effectiveness of the registration statement on Form S-4 registering the Entegris common stock issuable pursuant to the merger agreement and the absence of any stop order or proceedings by the SEC with respect thereto. The obligation of each of Versum and Entegris to consummate the merger is also conditioned on, among other things, the receipt by such party of a written opinion from such party's counsel to the effect that for U.S. federal income tax purposes the merger will qualify as a reorganization within the meaning of Section 368(a) of the Code, the truth and correctness of the representations and warranties made by the other party on the date of the merger agreement and on the closing date (subject to certain materiality qualifiers) and the performance by the other party in all material respects of its obligations under the merger agreement. No assurance can be given that the required stockholder, governmental and regulatory consents and approvals will be obtained or that the required conditions to closing will be satisfied, and, even if all required consents and approvals are obtained and the conditions are satisfied, no assurance can be given as to the terms, conditions and timing of such consents and approvals. Any delay in completing the merger could cause the combined company not to realize, or to be delayed in realizing, some or all of the benefits that Entegris and Versum expect to achieve if the merger is successfully completed within its expected time frame. For a more complete summary of the conditions that must be satisfied or waived prior to completion of the merger, see the section entitled **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152.

Q:

What respective equity stakes will Entegris stockholders and Versum stockholders hold in the combined company immediately following the merger?

- A: As of the date of this joint proxy statement/prospectus, based on the exchange ratio of 1.120 and the estimated number of shares of common stock of Entegris and Versum that will be outstanding immediately prior to the completion of the merger, including exercisable options, Entegris and Versum estimate that holders of shares of Entegris common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 52.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including

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exercisable options only) immediately following the completion of the merger, and holders of shares of Versum common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 47.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger. The exact equity stake of Entegris stockholders and Versum stockholders in the combined company immediately following the merger will depend on the number of shares of Entegris common stock and Versum common stock issued and outstanding immediately prior to the merger.

Q: Will I still be paid dividends prior to the merger?

A: Entegris may declare and pay one regular quarterly cash dividend per quarter in an amount per share of up to \$0.07 per quarter with a record date consistent with the record date for each quarterly period. Versum may declare and pay one regular quarterly cash dividend per quarter in an amount per share of up to \$0.08 per quarter and with a record date consistent with the record date for each quarterly period.

Entegris and Versum have agreed to coordinate with each other on the declaration, setting of record dates and payment dates of dividends with the intention that holders of shares of Versum common stock do not receive dividends on both shares of Versum common stock and Entegris common stock received in the merger in respect of any calendar quarter or fail to receive a dividend on either shares of Versum common stock or Entegris common stock received in the merger in respect of any calendar quarter. The declaration and payment of any dividends on shares of Entegris common stock or Versum common stock remain subject to applicable law and the approval of the Versum board of directors or the Entegris board of directors, as applicable.

For more information regarding the payment of dividends, see the section entitled **The Merger Agreement Conduct of Business Prior to the Effective Time** beginning on page 136.

Q: If I am a Versum stockholder, how will I receive the merger consideration to which I am entitled?

A: If you hold your shares of Versum common stock through The Depository Trust Company, which is referred to as DTC, in book-entry form, you will not be required to take any specific actions to exchange your shares for shares of Entegris common stock. After the completion of the merger, shares of Versum common stock held through DTC in book-entry form will be automatically exchanged for shares of Entegris common stock in book-entry form and cash to be paid in lieu of any fractional share of Entegris common stock to which you are entitled. If you hold your shares of Versum common stock in certificated form, or in book-entry form but not through DTC, after receiving the proper documentation from you, following the effective time, the exchange agent will deliver to you the Entegris common stock (in book-entry form) and cash in lieu of fractional shares to which you are entitled. More information may be found in the sections entitled **The Merger Exchange of Shares** beginning on page 125 and **The Merger Agreement Exchange of Shares** beginning on page 129.

Q: What should I do now?

A:

You should read this joint proxy statement/prospectus carefully and in its entirety, including the annexes, and return your completed, signed and dated WHITE proxy card(s) by mail in the enclosed postage-paid envelope or submit your voting instructions by telephone or over the Internet as soon as possible so that your shares will be voted in accordance with your instructions.

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Q: Whom do I call if I have questions about the Entegris special meeting, the Versum special meeting or the merger?

A: If you have questions about the Entegris special meeting, the Versum special meeting or the merger, or desire additional copies of this joint proxy statement/prospectus or additional proxies, you may contact:

if you are an Entegris stockholder:

MacKenzie Partners, Inc.
1407 Broadway, 27th Floor
New York, New York 10018
Toll-Free: (800) 322-2885

Call Collect: (212) 929-5500

if you are a Versum stockholder:

Innisfree M&A Incorporated
501 Madison Avenue, 20th Floor
New York, New York 10022
Toll-Free: (877) 456-3463
Call Collect: (212) 750-5833

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SUMMARY

*For your convenience, provided below is a brief summary of certain information contained in this joint proxy statement/prospectus. This summary highlights selected information from this joint proxy statement/prospectus and does not contain all of the information that may be important to you as an Entegris stockholder or a Versum stockholder. To understand the merger fully and for a more complete description of the terms of the merger, you should read carefully this entire joint proxy statement/prospectus, its annexes and the other documents to which you are referred. Items in this summary include a page reference directing you to a more complete description of those items. You may obtain the information incorporated by reference into this joint proxy statement/prospectus without charge by following the instructions under the section entitled **Where You Can Find More Information** beginning on page 213.*

The Parties to the Merger (Page 58)

Entegris, Inc.

Entegris is a leading global developer, manufacturer and supplier of microcontamination control products, specialty chemicals and advanced materials handling solutions for manufacturing processes in the semiconductor and other high-technology industries. Entegris operates in three segments: Specialty Chemicals and Engineered Materials, Microcontamination Control and Advanced Materials Handling. Entegris' principal executive offices are located at 129 Concord Road, Billerica, Massachusetts 01821 and its telephone number is (978) 436-6500.

Versum Materials, Inc.

Versum is a global provider of innovative solutions to the semiconductor and display industries with expertise in the development, manufacturing, transportation and handling of specialty materials. Versum employs expertise in molecular design and synthesis, purification, advanced analytics, formulation development and containers and delivery systems for the handling of high purity materials to deliver leading-edge solutions and critical process support to Versum's customers. Versum's principal executive offices are located at 8555 South River Parkway, Tempe, Arizona 85284 and its telephone number is (602) 282-1000.

The Merger and the Merger Agreement (Pages 80 and 127)

The terms and conditions of the merger are contained in the merger agreement, a copy of which is attached as Annex A to this joint proxy statement/prospectus. You are encouraged to read the merger agreement carefully and in its entirety, as it is the primary legal document that governs the merger.

Pursuant to the merger agreement, Versum will merge with and into Entegris. At the effective time, the separate existence of Versum will cease, and Entegris will be the surviving corporation. Following the merger, Versum common stock will be delisted from the NYSE, deregistered under the Exchange Act and will cease to be publicly traded.

Exchange Ratio (Page 80)

At the effective time, each share of Versum common stock (other than shares of Versum common stock owned by Versum (excluding any such shares of Versum common stock owned by a Versum benefits plan or held on behalf of third parties), which are referred to collectively as Versum excluded shares) will be converted into the right to receive 1.120 shares of Entegris common stock.

The exchange ratio is fixed, which means that it will not change between now and the date of the merger, regardless of whether the market price of either Entegris common stock or Versum common stock changes. No

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fractional shares of Entegris common stock will be issued upon the conversion of shares of Versum common stock pursuant to the merger agreement. Each Versum stockholder that otherwise would have been entitled to receive a fraction of a share of Entegris common stock will be entitled to receive cash in lieu of a fractional share.

Entegris stockholders will continue to own their existing shares, which will not be affected by the merger and which will constitute shares of the combined company following completion of the merger.

Treatment of Existing Entegris Equity Awards (Page 128)

Entegris equity awards will remain equity awards relating to shares of Entegris common stock. Entegris equity awards will continue to vest in accordance with the terms of the award agreements applicable to such Entegris equity awards. However, the Entegris board of directors (or the applicable committee thereof) may determine to treat the merger as a change in control or term of similar meaning for purposes of the Entegris compensation and benefit plans, including Entegris equity awards, which determination may result in certain double trigger benefits under such plans upon a qualifying termination of employment subsequent to the effective time, but in no event may such determination result in the single-trigger payment of benefits under such plans upon or in connection with the merger. Entegris may amend any outstanding Entegris options and Entegris RSU awards, granted prior to January 27, 2019 to provide for, and may include in Entegris options, Entegris RSU awards and Entegris PSU awards granted in fiscal year 2019, double-trigger vesting upon certain qualifying terminations of employment.

Treatment of Existing Versum Equity Awards (Page 129)

At the effective time, each Versum option that is outstanding immediately prior to the effective time will vest and be converted into a converted option relating to a number of shares of Entegris common stock equal to the product of (i) the number of shares of Versum common stock subject to the Versum option immediately prior to the effective time multiplied by (ii) the exchange ratio (rounded down to the nearest whole share number), with a per share exercise price equal to (a) the per share exercise price applicable to such Versum option immediately prior to the effective time divided by (b) the exchange ratio (rounded up to the nearest whole cent). Except as noted in the immediately preceding sentence, each converted option will continue to be governed by the same terms and conditions as were applicable to the Versum option immediately prior to the effective time.

At the effective time, each Versum RSU award and Versum PSU award that is outstanding immediately prior to the effective time will be converted into a converted RSU award relating to a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock subject to the Versum RSU award or Versum PSU award immediately prior to the effective time multiplied by (ii) the exchange ratio. For Versum PSU awards, the number of shares in clause (i) of the immediately preceding sentence will be determined based on actual performance through a shortened performance period ending immediately prior to the effective time. The converted RSU awards will vest and settle on terms (including acceleration events) at least as favorable as were applicable to the corresponding Versum RSU award or Versum PSU award immediately prior to the effective time, except that converted RSU awards relating to Versum PSU awards will vest solely based on continued service. Each converted RSU award will vest in full on the original vesting date or if the holder experiences a covered termination following the effective time and prior to the original vesting date, on the date of such covered termination. For employees of Versum and its subsidiaries, a covered termination means a termination by Versum or one of its subsidiaries or their successor in interest without cause or, to the extent good reason rights are provided for in the award agreement (or employment or similar agreement) applicable to the corresponding Versum RSU award or Versum PSU award, a resignation by the employee for good reason (as such terms are defined in the applicable Versum agreement), in either case, during the 24-month period following the effective time. For non-employee directors of Versum, a covered termination means the termination of their service as a director for any reason at or following the effective time.

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At the effective time, each Versum DSU award will vest and be converted into the right to receive a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock covered by the Versum DSU award immediately prior to the effective time by (ii) the exchange ratio, with such shares distributed to the holder within 30 business days following the effective time.

Entegris Recommendation and Reasons for the Merger (Page 87)

The Entegris board of directors unanimously recommends that Entegris stockholders vote **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal. In reaching its determinations and recommendations, the Entegris board of directors consulted with Entegris senior management and its outside legal and financial advisors, and considered a number of factors, including the following factors that weighed in favor of the merger:

the benefits of a combined company, including the belief of the Entegris board of directors that the combined company would be well positioned to achieve future growth and generate additional returns for Entegris stockholders;

the exchange ratio and merger consideration, including the relative favorability of the exchange ratio relative to the exchange ratios historically implied by the relative trading prices of Entegris and Versum common stock over various periods and relative to the current assessment of the valuation of each company and of the synergies and other benefits of the merger;

the governance terms for the combined company, including the structure of the transaction as a merger of equals in addition to the governance terms in the merger agreement;

certain other factors, including the past experience the Entegris management team has had in timely and effective corporate integration following significant combinations and acquisitions, including a prior merger of equals, historical information concerning Entegris and Versum's respective businesses, financial condition, results of operations, earnings, trading prices, technology positions, managements, competitive positions and prospects on a stand-alone basis and forecasted combined basis, and the current and prospective business environment in which Entegris and Versum operate, including international, national and local economic conditions, the competitive and regulatory environment, and the likely effect of these factors on Entegris and the combined company; and

the terms of the merger agreement, taken as a whole.

For a more complete description of the factors considered by the Entegris board of directors in reaching this decision, including potentially negative factors against which these advantages and opportunities were weighed, and additional information on the recommendation of the Entegris board of directors, see the section entitled **The Merger Recommendation of the Entegris Board of Directors; Entegris Reasons for the Merger** beginning on page 87.

Versum's Recommendation and Reasons for the Merger (Page 91)

The Versum board of directors unanimously recommends that Versum stockholders vote **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal. In reaching its determinations and recommendations, the Versum board of directors consulted with Versum's senior management and its outside legal and financial advisors, and considered a number of factors, including the following factors that weighed in favor of the merger:

the expectation that the combined company will have flexibility to invest, make acquisitions, and return capital to stockholders, while enjoying greater earnings stability and margin growth potential;

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the fact that the exchange ratio, based on the closing price of the Versum common stock and the Entegris common stock as of January 25, 2019, the last trading day prior to the announcement of the merger agreement, represented an implied premium of approximately 10.8% to the closing price of the Versum common stock on January 25, 2019;

the structure of the transaction as a merger of equals, including the governance terms in the merger agreement;

certain other factors, including the opportunity to combine resources and expertise to better meet the evolving needs of customers of both companies, the historical and projected financial information concerning Versum's business, financial performance and condition, results of operations, earnings, competitive position and prospects as a stand-alone company, and the current and prospective business environment in which Versum and Entegris operate, including international, national and local economic conditions, the competitive and regulatory environment, and the likely effect of these factors on Versum and the combined company; and

the terms of the merger agreement, taken as a whole.

For a more complete description of the factors considered by the Versum board of directors in reaching this decision, including potentially negative factors against which these advantages and opportunities were weighed, and additional information on the recommendation of the Versum board of directors, see the section entitled **The Merger Recommendation of the Versum Board of Directors; Versum's Reasons for the Merger** beginning on page 91.

Opinion of Entegris Financial Advisor (Page 96 and Annex C)

Entegris retained Morgan Stanley & Co. LLC, which is referred to as Morgan Stanley, to act as financial advisor to the Entegris board of directors in connection with the proposed merger of Entegris and Versum. The Entegris board of directors selected Morgan Stanley to act as its financial advisor based on Morgan Stanley's qualifications, expertise and reputation, its knowledge of and involvement in recent transactions in the industry, and its knowledge of Entegris business and affairs. At the meeting of the Entegris board of directors on January 27, 2019, Morgan Stanley rendered its oral opinion, subsequently confirmed in writing, that as of such date and based upon and subject to the various assumptions made, procedures followed, matters considered, and qualifications and limitations on the scope of the review undertaken by Morgan Stanley as set forth in the written opinion, the exchange ratio pursuant to the merger agreement was fair from a financial point of view to Entegris.

The full text of the written opinion of Morgan Stanley, dated as of January 27, 2019, which sets forth, among other things, the assumptions made, procedures followed, matters considered and qualifications and limitations on the scope of the review undertaken by Morgan Stanley in rendering its opinion, is attached to this joint proxy statement/prospectus as Annex C. You are encouraged to read the entire opinion carefully and in its entirety. Morgan Stanley's opinion was rendered for the benefit of the Entegris board of directors, in its capacity as such, and addressed only the fairness from a financial point of view of the exchange ratio pursuant to the merger agreement to Entegris as of the date of the opinion. Morgan Stanley's opinion did not address any other aspect of the merger or related transactions, including the relative merits of the merger as compared to any other alternative business transaction, or other alternatives, the prices at which shares of Entegris common stock or Versum common stock would trade at any time in the future, or any compensation or compensation agreements arising from (or relating to) the merger which

benefit any officer, director or employee of any party to the merger, or any class of such persons. The opinion was addressed to, and rendered for the benefit of, the Entegris board of directors and was not intended to, and does not, constitute advice or a recommendation to any holder of shares of Entegris common stock or any holder of shares of Versum common stock as to how to vote or act on any matter with respect to the merger or related transactions or any other action with respect to the transactions

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contemplated by the merger agreement, including the merger. For a further discussion of Morgan Stanley's opinion, see **The Merger Opinion of Entegris Financial Advisor** beginning on page 96.

Opinion of Versum's Financial Advisor (Page 107 and Annex D)

On January 27, 2019, at the meeting of the Versum board of directors at which the merger was approved, Lazard Frères & Co. LLC, which is referred to as Lazard, Versum's financial advisor in connection with the merger, rendered to the Versum board of directors an oral opinion, confirmed by delivery of a written opinion, dated January 27, 2019, to the effect that, as of such date, and based upon and subject to the assumptions, procedures, factors, qualifications and limitations set forth in its written opinion, the exchange ratio in the merger was fair, from a financial point of view, to Versum stockholders (other than the holders of Versum excluded shares).

The full text of Lazard's written opinion, dated January 27, 2019, which sets forth the assumptions made, procedures followed, factors considered and qualifications and limitations on the review undertaken by Lazard in connection with its opinion, is attached as Annex D to this joint proxy statement/prospectus and is incorporated herein by reference. The summary of the opinion of Lazard set forth in this joint proxy statement/prospectus is qualified in its entirety by reference to the full text of such opinion. Versum stockholders are urged to read the opinion in its entirety. Lazard's written opinion was addressed to the Versum board of directors (in its capacity as such) in connection with and for the purpose of its evaluation of the merger, was directed only to the fairness, from a financial point of view, to holders of Versum common stock (other than the holders of Versum excluded shares) of the exchange ratio in the merger, and did not address any other aspect of the merger. Lazard expressed no opinion as to the fairness of the exchange ratio to the holders of any other class of securities, creditors or other constituencies of Versum or as to the underlying decision by Versum to engage in the merger. The issuance of Lazard's opinion was approved by a fairness committee of Lazard. The opinion does not constitute a recommendation to any Versum stockholder as to how such stockholder should vote with respect to the merger or any other matter.

For a description of the opinion that the Versum board of directors received from Lazard, see **The Merger Opinion of Versum's Financial Advisor** beginning on page 107.

The Entegris Special Meeting (Page 59)

The Entegris special meeting will be held on April 26, 2019 at 12:00 p.m., Eastern Time, at Entegris headquarters at 129 Concord Road, Billerica, Massachusetts 01821. The purposes of the Entegris special meeting are as follows:

Entegris Proposal 1: Adoption of the Merger Agreement. To consider and vote on the Entegris merger agreement proposal;

Entegris Proposal 2: Adoption of the Amended and Restated Certificate of Incorporation of Entegris. To consider and vote on the Entegris charter proposal;

Entegris Proposal 3: Approval, on an Advisory (Non-Binding) Basis, of Certain Compensatory Arrangements with Entegris Named Executive Officers. To consider and vote on the Entegris compensation proposal; and

Entegris Proposal 4: Adjournment of the Entegris Special Meeting. To consider and vote on the Entegris adjournment proposal.

Completion of the merger is conditioned on the approval of the Entegris merger agreement proposal by Entegris stockholders. Approval of the Entegris charter proposal and the advisory proposal concerning the merger-related compensation arrangements for Entegris named executive officers are not conditions to the obligation of either Versum or Entegris to complete the merger.

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Only holders of record of issued and outstanding shares of Entegris common stock as of the close of business on April 2, 2019, the record date for the Entegris special meeting, are entitled to notice of, and to vote at, the Entegris special meeting or any adjournment or postponement of the Entegris special meeting. Entegris stockholders may cast one vote for each share of Entegris common stock that Entegris stockholders owned as of that record date.

Assuming a quorum is present at the Entegris special meeting, the Entegris merger agreement proposal requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on such proposal. Shares of Entegris common stock not present, and shares present and not voted, whether by broker non-vote, abstention or otherwise, will have the same effect as votes cast **AGAINST** the proposal to adopt the merger agreement.

Assuming a quorum is present at the Entegris special meeting, the Entegris charter proposal requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on such proposal. Shares of Entegris common stock not present, and shares present and not voted, whether by broker non-vote, abstention or otherwise, will have the same effect as votes cast **AGAINST** the proposal to approve the charter proposal.

Assuming a quorum is present at the Entegris special meeting, approval of the Entegris compensation proposal requires the affirmative vote of a majority of votes properly cast on the proposal. Accordingly, an Entegris stockholder's abstention from voting, a broker non-vote or an Entegris stockholder's other failure to vote, will have no effect on the outcome of the Entegris compensation proposal.

Whether or not there is a quorum, the approval of the Entegris adjournment proposal requires the approval of the holders of a majority of the voting shares of Entegris common stock represented at the Entegris special meeting. Accordingly, an abstention will have the same effect as a vote **AGAINST** the Entegris adjournment proposal, while a broker non-vote or other failure to vote will have no effect on the outcome of the Entegris adjournment proposal.

The Versum Special Meeting (Page 70)

The Versum special meeting will be held at 8555 South River Parkway, Tempe, Arizona 85284, on April 26, 2019, beginning at 9:00 a.m., Mountain Standard Time. The purposes of the Versum special meeting are as follows:

Versum Proposal 1: Adoption of the Merger Agreement. To consider and vote on the Versum merger agreement proposal;

Versum Proposal 2: Approval, on an Advisory (Non-Binding) Basis of Certain Compensatory Arrangements with Versum's Named Executive Officers. To consider and vote on the Versum compensation proposal; and

Versum Proposal 3: Adjournment of the Versum Special Meeting. To consider and vote on the Versum adjournment proposal.

Completion of the merger is conditioned on the approval of the Versum merger agreement proposal by Versum stockholders. Approval of the advisory proposal concerning the merger-related compensation arrangements for Versum's named executive officers is not a condition to the obligation of either Versum or Entegris to complete the merger.

Only holders of record of issued and outstanding shares of Versum common stock as of the close of business on April 2, 2019, the record date for the Versum special meeting, are entitled to notice of, and to vote at,

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the Versum special meeting or any adjournment or postponement of the Versum special meeting. Versum stockholders may cast one vote for each share of Versum common stock that Versum stockholders owned as of that record date.

Assuming a quorum is present at the Versum special meeting, the Versum merger agreement proposal requires the affirmative vote of a majority of the outstanding shares of Versum common stock entitled to vote thereon. Shares of Versum common stock not present, and shares present and not voted, whether by broker non-vote, abstention or otherwise, will have the same effect as votes cast **AGAINST** the proposal to adopt the merger agreement.

Assuming a quorum is present at the Versum special meeting, approval of the Versum compensation proposal requires the affirmative vote of a majority of the votes cast at Versum special meeting on this proposal. Accordingly, a failure to vote, a broker non-vote or an abstention will have no effect on the outcome of the Versum compensation proposal.

Whether or not there is a quorum, the approval of the Versum adjournment proposal requires the affirmative vote of a majority of the votes entitled to be cast who are present in person or represented by proxy at the Versum special meeting on this proposal. Accordingly, an abstention will have the same effect as a vote **AGAINST** the Versum adjournment proposal, while a broker non-vote or other failure to vote will have no effect on the outcome of the Versum adjournment proposal.

Interests of Entegris Directors and Executive Officers in the Merger (Page 170)

In considering the recommendations of the Entegris board of directors, Entegris stockholders should be aware that Entegris directors and executive officers have interests in the merger, including financial interests, that may be different from, or in addition to, the interests of other Entegris stockholders generally. The Entegris board of directors was aware of and considered these interests, among other matters, in reaching its decisions to adopt the merger agreement and approve the transactions contemplated thereby and to recommend the adoption of the merger agreement to Entegris stockholders.

These interests include:

the Entegris board of directors (or the applicable committee thereof) has determined to treat the transactions contemplated by the merger agreement as a change in control or term of similar meaning for purposes of the Entegris compensation and benefit plans, including with respect to Entegris equity awards held by directors and executive officers, subject to certain limitations;

Entegris executive officers will be entitled to enhanced severance benefits under their respective employment arrangements in the event of a qualifying termination of employment within 24 months following the effective time;

Entegris executive officers may be eligible to receive a cash-based retention award in connection with a cash retention program that Entegris may establish in connection with the merger; and

the merger agreement provides that certain members of the Entegris board of directors, who will be determined prior to closing by mutual agreement of the parties, and certain executive officers of Entegris will become directors and/or executive officers of the combined company following the merger; the parties intend that the combined company board of directors represent an appropriate mix of relevant experience, qualifications and attributes.

For a more complete description of these interests, see the information provided in the section entitled **Interests of Entegris Directors and Executive Officers in the Merger** beginning on page 170.

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Interests of Versum's Directors and Executive Officers in the Merger (Page 176)

In considering the recommendations of the Versum board of directors, Versum stockholders should be aware that Versum's directors and executive officers have interests in the merger, including financial interests, that may be different from, or in addition to, the interests of the other Versum stockholders generally. The Versum board of directors was aware of and considered these interests, among other matters, in reaching its decisions to adopt the merger agreement and approve the transactions contemplated thereby and to recommend the adoption of the merger agreement to Versum stockholders.

These interests include:

unvested Versum RSU awards, including those held by directors and executive officers, will be converted into a number of Entegris time-based restricted stock units, which will vest in full upon certain terminations of employment following the effective time;

unvested Versum PSU awards, including those held by executive officers, will be converted (based on actual Versum performance for a truncated performance period ending immediately prior to the effective time) into a number of Entegris time based restricted stock units, which will vest in full upon certain terminations of employment following the effective time;

each Versum DSU award held in a director's account under Versum Deferred Compensation Plan for Directors shall be fully vested and settled in shares of Entegris common stock within 30 days following the effective time;

Versum's executive officers are entitled to enhanced severance benefits under their respective employment agreements in the event of a qualifying termination of employment following the effective time;

certain of Versum's executive officers have account balances under the Versum Deferred Compensation Plan, with such balances paid out as soon as administratively feasible following the effective time, but in no event longer than 90 days thereafter;

certain of Versum's executive officers may be eligible to receive a cash-based retention award in connection with a cash retention program that Versum has established in connection with the merger;

the merger agreement provides that the directors and officers of Versum and its subsidiaries will have the right to indemnification and continued coverage under directors' and officers' liability insurance policies following the merger; and

certain members of the Versum board of directors, who will be determined prior to closing by mutual agreement of the parties, and certain executive officers of Versum will become directors and/or executive officers of the combined company following the merger, as agreed between the parties and as provided in the merger agreement; the parties intend that the combined company board of directors represent an appropriate mix of relevant experience, qualifications and attributes.

These interests are discussed in more detail in the section entitled **Interests of Versum's Directors and Executive Officers in the Merger** beginning on page 176.

Governance of the Combined Company (Page 124, [Annex A](#) and [Annex B](#))

The merger agreement and the amended and restated certificate of incorporation of Entegris, copies of which are attached to this joint proxy statement/prospectus as [Annex A](#) and [Annex B](#), respectively, contain certain provisions relating to the governance of the combined company following completion of the merger, which reflect the merger of equals structure of the proposed business combination.

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Board of Directors

As of the effective time, the board of directors of the combined company will consist of nine directors, who will be determined prior to closing by mutual agreement of the parties, including:

four directors designated by Entegris prior to the effective time who were directors of Entegris prior to the effective time, who are referred to as the Entegris designees;

four directors designated by Versum prior to the effective time who were directors of Versum prior to the effective time, who are referred to as the Versum designees (which will include the chairman of the board of directors of Versum); and

the chief executive officer of Entegris, who is referred to as the Entegris CEO.

The parties intend that the combined company board of directors represent an appropriate mix of relevant experience, qualifications and attributes. Each of the Entegris designees and the Versum designees will meet the independence standards of NASDAQ or the NYSE as may be applicable with respect to the combined company as of the effective time. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, any action by the board of directors of the combined company to change the chief executive officer or the chairman of the board of directors of the combined company will require approval of at least 75% of the then-serving directors.

As of the date of this joint proxy statement/prospectus, other than as set forth above, the individuals to serve on the board of directors of the combined company at the effective time have not been determined.

Chairman of the Board of Directors

The chairman of the board of directors of Versum will serve as the chairman of the board of directors of the combined company as of the effective time. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, the removal of the chairman of the board of directors of the combined company will require the approval of at least 75% of the then-serving directors.

Committees of the Board of Directors

As of the effective time, the board of directors of the combined company will include three committees: the audit and finance committee, the compensation committee and the nominating and governance committee.

Chief Executive Officer

As of the effective time, the Entegris CEO will serve as the chief executive officer of the combined company. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, the removal of the chief executive officer of the combined company will require the approval of at least 75% of the then-serving directors.

Name

The name of the combined company will be Entegris, Inc. as of the effective time.

Headquarters

As of the effective time, the headquarters of the combined company will be located in Billerica, Massachusetts.

Table of Contents**Certain Beneficial Owners of Entegris Common Stock (Page 207)**

At the close of business on March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, Entegris directors and executive officers and their affiliates, as a group, beneficially owned and were entitled to vote approximately 1,125,061 shares of Entegris common stock, collectively representing 0.8% of the shares of Entegris common stock outstanding on March 11, 2019. Although none of them has entered into any agreement obligating them to do so, Entegris currently expects that all of its directors and executive officers will vote their shares **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal. For more information regarding the security ownership of Versum directors and executive officers, see the information provided in the section entitled **Certain Beneficial Owners of Entegris Common Stock Security Ownership of Entegris Directors and Executive Officers** beginning on page 207.

Certain Beneficial Owners of Versum Common Stock (Page 209)

At the close of business on March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, Versum's directors and executive officers and their affiliates, as a group, beneficially owned and were entitled to vote approximately 679,695 shares of Versum common stock, collectively representing 0.62% of the shares of Versum common stock outstanding on March 11, 2019. Although none of them has entered into any agreement obligating them to do so, Versum currently expects that all of its directors and executive officers will vote their shares **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal, and **FOR** the Versum adjournment proposal. For more information regarding the security ownership of Versum directors and executive officers, see the information provided in the section entitled **Certain Beneficial Owners of Versum Common Stock Security Ownership of Versum's Directors and Executive Officers** beginning on page 209.

Regulatory Approvals (Page 122)

Entegris and Versum are required to cooperate with each other and use (and to cause their respective subsidiaries to use) their respective reasonable best efforts to take or cause to be taken all actions, and do or cause to be done all things reasonably necessary, proper or advisable on its part under the merger agreement and applicable law to cause the conditions to closing to be satisfied as promptly as reasonably practicable and advisable (and in any event no later than the outside date (as defined in the section entitled **The Merger Agreement Termination of the Merger Agreement Termination by Either Entegris or Versum** beginning on page 153)) and to consummate and make effective the merger and the other transactions contemplated by the merger agreement as soon as reasonably practicable, including preparing and filing as promptly as reasonably practicable and advisable all documentation to effect all necessary notices, reports and other filings, and to obtain as promptly as reasonably practicable (and in any event no later than the outside date) all actions or nonactions, waivers, consents, registrations, expirations or terminations of waiting periods, approvals, permits and authorizations, which are collectively referred to as consents, necessary or advisable to be obtained from any third party or any governmental entity in order to consummate the merger and the other transactions contemplated by the merger agreement.

Entegris and Versum are required under the merger agreement to accept or agree to certain conditions (as described in the section entitled **The Merger Agreement Cooperation; Efforts to Consummate** beginning on page 145), including potential asset divestitures, in order to obtain such regulatory approvals.

The completion of the merger is subject to the receipt of antitrust clearance in the United States and in China, Germany, Japan, South Korea, and Taiwan. With respect to the United States, under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder, which is

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referred to as the HSR Act, the merger may not be completed until notification and report forms have been filed with the U.S. Federal Trade Commission, which is referred to as the FTC, and the Antitrust Division of the U.S. Department of Justice, which is referred to as the DOJ, and the applicable waiting period has expired or been terminated. A transaction requiring notification under the HSR Act may not be completed until the expiration of a 30-calendar-day waiting period following the parties' filing of their respective HSR notifications or the early termination of that waiting period. Entegris and Versum each filed an HSR notification with the FTC and the DOJ on February 6, 2019 and the waiting period expired at 11:59 p.m. Eastern Time on March 8, 2019. With respect to Germany, clearance was received on March 19, 2019.

Ownership of the Combined Company after the Merger (Page 123)

As of the date of this joint proxy statement/prospectus, based on the exchange ratio of 1.120 and the estimated number of shares of common stock of Entegris and Versum that will be outstanding immediately prior to the completion of the merger (including shares of Entegris common stock issuable upon the exercise of any converted options), Entegris and Versum estimate that holders of shares of Entegris common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 52.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger, and holders of shares of Versum common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 47.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger.

No Appraisal Rights (Page 204)

Neither Entegris stockholders nor Versum stockholders are entitled to dissenters' rights under the DGCL.

Conditions to the Completion of the Merger (Page 152)

Each party's obligation to effect the merger is subject to the satisfaction at closing or waiver at or prior to closing of each of the following conditions:

receipt of the required Entegris vote and the required Versum vote (each as defined in the section entitled **The Merger Agreement Representations and Warranties** beginning on page 133);

the shares of Entegris common stock to be issued to Versum stockholders in accordance with the merger agreement (including shares of Entegris common stock issuable upon the exercise of any converted options) having been approved for listing on NASDAQ or the NYSE;

expiration of waiting periods and the receipt of all requisite regulatory approvals (as defined in the section entitled **The Merger Regulatory Approvals** beginning on page 122), the continued full force and effectiveness of the requisite regulatory approvals and no governmental entity of competent jurisdiction having enacted, issued, promulgated, enforced or entered any law or governmental order (whether temporary, preliminary or permanent) in connection with a requisite regulatory approval that (a) requires either party or any of its subsidiaries to take an action that would constitute or would reasonably be expected

to have a burdensome effect (as defined in the section **The Merger Agreement Cooperation; Efforts to Consummate** beginning on page 145) or (b) would otherwise constitute or reasonably be expected to have a burdensome effect and is in effect;

no governmental entity of competent jurisdiction having enacted, issued, promulgated, enforced or entered any relevant legal restraint (as defined in the section **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152);

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the effectiveness of the registration statement of which this joint proxy statement/prospectus forms a part and the absence of a stop order or proceeding seeking a stop order by the SEC;

the accuracy of the representations and warranties of the other party to the extent required under the merger agreement;

the other party's performance of, in all material respects, its obligations under the merger agreement required to be performed at or prior to the closing date;

the receipt by such party of a certificate of the chief executive officer or chief financial officer of the other party certifying that the conditions in the immediately two preceding bullets have been satisfied; and

the receipt of a written opinion from such party's counsel, in form and substance reasonably satisfactory to such party, dated as of the closing date, to the effect that for U.S. federal income tax purposes the merger will qualify as a reorganization within the meaning of Section 368(a) of the Code.

In addition, the obligations of Versum to effect the merger are subject to the satisfaction or waiver of the following additional condition:

Entegris having taken the actions necessary such that the board of directors, chairman of the board of directors and chief executive officer of the combined company are as provided in the merger agreement effective as of the effective time.

No Solicitation of Acquisition Proposals (Page 140)

Entegris and Versum have agreed that neither Entegris nor Versum, nor any of their respective subsidiaries, will, and that they will cause their and their respective subsidiaries' directors, officers, employees not to, and not permit its investment bankers, attorneys, accountants and other advisors or representatives to, which directors, officers, employees, investment bankers, attorneys, accountants and other advisors or representatives are collectively referred to as representatives, directly or indirectly:

initiate, solicit, propose, knowingly encourage (including by way of furnishing information) or knowingly take any action designed to facilitate any inquiry regarding, or the making of any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to, an acquisition proposal (as defined in the section entitled **The Merger Agreement No Solicitation of Acquisition Proposals** beginning on page 140);

engage in, continue or otherwise participate in any discussions with or negotiations relating to, or otherwise cooperate in any way with, any acquisition proposal or any inquiry, proposal or offer that would reasonably be expected to lead to an acquisition proposal (other than to state that the terms of the merger agreement prohibit such discussions or negotiations);

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provide any nonpublic information to any person in connection with any acquisition proposal or any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to an acquisition proposal; or

otherwise knowingly facilitate any effort or attempt to make an acquisition proposal or any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to an acquisition proposal.

Notwithstanding the restrictions described above, prior to the time, but not after, in the case of Versum, the required Versum vote is obtained or, in the case of Entegris, the required Entegris vote is obtained, in response to

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an unsolicited, *bona fide* written acquisition proposal received after the date of the merger agreement that did not arise from or in connection with a breach of the above obligations, Entegris or Versum, as applicable, may:

provide information in response to a request therefor (including nonpublic information regarding it or any of its subsidiaries) to the person who made such acquisition proposal if such information has previously been made available to, or is made available to, Entegris or Versum, as applicable, prior to or substantially concurrently with the time such information is made available to such person and, prior to furnishing any such information, Entegris or Versum, as applicable, receives from the person making such acquisition proposal an executed confidentiality agreement, subject to certain conditions; and

participate in any discussions or negotiations with any such person regarding such acquisition proposal, in each case only if, prior to doing so, the Entegris board of directors or Versum board of directors, as applicable, determines in good faith after consultation with its outside legal counsel that based on the information then available and after consultation with its financial advisor, such acquisition proposal either constitutes a superior proposal (as defined in the section entitled **The Merger Agreement No Solicitation of Acquisition Proposals** beginning on page 140) or could reasonably be expected to result in a superior proposal.

No Change of Recommendation (Page 142)

Subject to certain exceptions described below, neither the Entegris board of directors nor the Versum board of directors, including any committee thereof, may make a change of recommendation (as defined in the section entitled **The Merger Agreement No Change of Recommendation** beginning on page 142) or cause or permit Versum or Entegris, as applicable, to enter into an alternative acquisition agreement (as defined in the section entitled **The Merger Agreement No Change of Recommendation** beginning on page 142).

Permitted Change of Recommendation Superior Proposal

Prior to the time, but not after, in the case of Versum, the required Versum vote is obtained or, in the case of Entegris, the required Entegris vote is obtained, the Versum board of directors or the Entegris board of directors, as applicable, may effect a change of recommendation or terminate the merger agreement to enter into a definitive written agreement with respect to a superior proposal if an unsolicited, *bona fide* written acquisition proposal received after the date of the merger agreement that did not arise from or in connection with a breach of the obligations set forth in the merger agreement is received by Versum or Entegris, as applicable, and is not withdrawn, and the Versum board of directors or the Entegris board of directors, as applicable, determines in good faith, after consultation with its outside legal counsel and its financial advisor that such acquisition proposal constitutes a superior proposal, and meets certain other conditions as described in the section entitled **The Merger Agreement No Change of Recommendation Permitted Change of Recommendation Intervening Event** beginning on page 142.

Permitted Change of Recommendation Intervening Event

Prior to the time, but not after, in the case of Versum, the required Versum vote is obtained or, in the case of Entegris, the required Entegris vote is obtained, the Versum board of directors or the Entegris board of directors, as applicable, may effect a change of recommendation if an intervening event (as defined in the section entitled **The Merger Agreement No Change of Recommendation Permitted Change of Recommendation Intervening Event** beginning on page 143) has occurred, and prior to taking such action, the Versum board of directors or Entegris board of

directors, as applicable, determines in good faith, after consultation with its outside legal counsel and its financial advisor, that failure to take such action in response to such intervening event would reasonably be expected to be inconsistent with the directors' fiduciary duties under applicable law, and

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meets certain other conditions as described in the section entitled **The Merger Agreement No Change of Recommendation Permitted Change of Recommendation Intervening Event** beginning on page 143.

Termination of the Merger Agreement (Page 153)

Termination by Mutual Consent

The merger agreement may be terminated and the merger and the other transactions contemplated by the merger agreement may be abandoned at any time prior to the effective time by mutual written consent of Versum and Entegris by action of their respective boards of directors.

Termination by Either Entegris or Versum

Either Entegris or Versum may terminate the merger agreement and the merger may be abandoned at any time prior to the effective time by action of its respective board of directors if:

there is an outside date termination event;

there is a regulatory restraint termination event;

there is a Versum no vote termination event; or

there is an Entegris no vote termination event,
in each case, as such terms are defined in the section entitled **The Merger Agreement Termination of the Merger Agreement Termination by Either Entegris or Versum** beginning on page 153.

Termination by Entegris

Entegris may terminate the merger agreement and the merger may be abandoned at any time prior to the effective time by action of the Entegris board of directors:

prior to the time the required Versum vote is obtained, if the Versum board of directors has made a change of recommendation;

if at any time prior to the effective time, there has been a breach by Versum of any of its representations, warranties, covenants or agreements set forth in the merger agreement such that the conditions relating to accuracy of representations and warranties and performance of covenants would not be satisfied (and such breach is not curable prior to the outside date, or if curable prior to the outside date, has not been cured within the earlier of (i) 30 days after the giving of notice thereof by Entegris to Versum or (ii) three business days prior to the outside date), except that this right to terminate the merger agreement is not available if

Entegris has breached in any material respect any of its representations, warranties, covenants or agreements set forth in the merger agreement in any manner that has been the primary cause of or primarily resulted in the occurrence of the failure of a condition to the consummation of the merger to be satisfied; or

in order to enter into a definitive written agreement with respect to a superior proposal with respect to Entegris, provided that Entegris has complied with its obligations described in the sections entitled **The Merger Agreement No Solicitation of Acquisition Proposals** , **The Merger Agreement Notice Regarding Acquisition Proposals** , **The Merger Agreement No Change of Recommendation** and **The Merger Agreement Existing Discussions and Standstill Provisions** beginning on pages 140, 142, 142 and 144, respectively, and, in connection with the termination of the merger agreement, Entegris pays to Versum in immediately available funds the Entegris termination fee (as defined in the section entitled **The Merger Agreement Termination Fees** beginning on page 155).

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Termination by Versum

Versum may terminate the merger agreement and the merger may be abandoned at any time prior to the effective time by action of the Versum board of directors:

prior to the time the required Entegris vote is obtained, if the Entegris board of directors has made a change of recommendation;

if at any time prior to the effective time, there has been a breach by Entegris of any of its representations, warranties, covenants or agreements set forth in the merger agreement such that the conditions relating to accuracy of representations and warranties and performance of covenants would not be satisfied (and such breach is not curable prior to the outside date, or if curable prior to the outside date, has not been cured within the earlier of (i) 30 days after the giving of notice thereof by Versum to Entegris or (ii) three business days prior to the outside date), except that this right to terminate the merger agreement is not available if Versum has breached in any material respect any of its representations, warranties, covenants or agreements set forth in the merger agreement in any manner that has been the primary cause of or primarily resulted in the occurrence of the failure of a condition to the consummation of the merger to be satisfied; or

in order to enter into a definitive written agreement with respect to a superior proposal with respect to Versum, provided that Versum has complied with its obligations described in the sections entitled **The Merger Agreement No Solicitation of Acquisition Proposals**, **The Merger Agreement Notice Regarding Acquisition Proposals**, **The Merger Agreement No Change of Recommendation** and **The Merger Agreement Existing Discussions and Standstill Provisions** beginning on pages 140, 142, 142 and 144, respectively, and, in connection with the termination of the merger agreement, Versum pays to Entegris in immediately available funds the Versum termination fee (as defined in the section entitled **The Merger Agreement Termination Fees** beginning on page 155).

Termination Fees (Page 155)

Versum will be required to pay to Entegris a termination fee of \$140 million, which is referred to as the Versum termination fee, if the merger agreement is terminated:

by either Versum or Entegris pursuant to an outside date termination (if the sole reason that the merger was not consummated was the failure of Versum to convene and hold the Versum special meeting prior to the outside date) or pursuant to a Versum no vote termination, and, in either case:

a *bona fide* acquisition proposal with respect to Versum has been made public or any person has publicly announced an intention (whether or not conditional) to make an acquisition proposal with respect to Versum (and such acquisition proposal or publicly announced intention has not been publicly withdrawn without qualification five business days prior to (i) the date of such termination, with respect to an outside date termination or (ii) the date of the Versum special meeting, with respect to a Versum no vote termination), and

within 12 months after the termination (a) Versum or any of its subsidiaries has entered into an alternative acquisition agreement with respect to any acquisition proposal with respect to Versum, or (b) there has been consummated any acquisition proposal with respect to Versum, as further described in the section entitled **The Merger Agreement Termination Fees** beginning on page 155,

by Entegris pursuant to a change of recommendation by the Versum board of directors,

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by either Entegris or Versum pursuant to a Versum no vote termination (and, at the time of such termination, Entegris had the right to terminate the merger agreement as a result of a change of recommendation by the Versum board of directors), or

by Versum to accept a superior proposal.

Entegris will be required to pay to Versum a termination fee of \$155 million, which is referred to as the Entegris termination fee, if the merger agreement is terminated:

by either Versum or Entegris pursuant to an outside date termination (if the sole reason that the merger was not consummated was the failure of Entegris to convene and hold the Entegris special meeting prior to the outside date) or pursuant to an Entegris no vote termination and, in either case:

a bona fide acquisition proposal with respect to Entegris has been made public or any person has publicly announced an intention (whether or not conditional) to make an acquisition proposal with respect to Entegris (and such acquisition proposal or publicly announced intention has not been publicly withdrawn without qualification five business days prior to (i) the date of such termination, with respect to an outside date termination or (ii) the date of the Entegris special meeting, with respect to an Entegris no vote termination), and

within 12 months after the termination (a) Entegris or any of its subsidiaries has entered into an alternative acquisition agreement with respect to any acquisition proposal with respect to Entegris, or (b) there has been consummated any acquisition proposal with respect to Entegris, as further described in the section entitled **The Merger Agreement Termination Fees** beginning on page 155,

by Versum pursuant to a change of recommendation by the Entegris board of directors,

by either Entegris or Versum pursuant to an Entegris no vote termination (and, at the time of such termination, Versum had the right to terminate the merger agreement as a result of a change of recommendation by the Entegris board of directors), or

by Entegris to accept a superior proposal.

Accounting Treatment (Page 125)

Entegris and Versum prepare their respective financial statements in accordance with GAAP. Although the parties have structured the merger as a merger of equals, GAAP requires that one party to the merger be identified as the acquirer. The merger will be accounted for using the acquisition method of accounting, and Entegris will be treated as the accounting acquirer. In identifying Entegris as the acquiring entity for accounting purposes, Entegris and Versum took into account a number of factors as of the date of this joint proxy statement/prospectus, including the relative voting rights of all equity instruments in the combined company and the intended corporate governance structure of the combined company. No single factor was the sole determinant in the overall conclusion that Entegris is the

acquirer for accounting purposes; rather all factors were considered in arriving at such conclusion.

Material U.S. Federal Income Tax Consequences (Page 183)

The merger is intended to qualify as a reorganization within the meaning of Section 368(a) of the Code, and it is a condition to the respective obligations of Entegris and Versum to complete the merger that each of Entegris and Versum receives a legal opinion to that effect. Accordingly, holders of Versum common stock are not expected to recognize any gain or loss for U.S. federal income tax purposes on the exchange of shares of Versum common stock for shares of Entegris common stock in the merger, except with respect to any cash received instead of fractional shares of Entegris common stock.

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Comparison of Stockholders Rights (Page 188)

Upon completion of the merger, Versum stockholders receiving shares of Entegris common stock will become stockholders of the combined company, and their rights will be governed by Delaware law and the governing corporate documents of the combined company in effect at the effective time. The form of the combined company charter (as defined in the section entitled **Comparison of Stockholders Rights** beginning on page 188) is attached as Annex B to this joint proxy statement/prospectus. Versum stockholders will have different rights once they become stockholders of the combined company due to differences between the governing corporate documents of Entegris and the proposed governing corporate documents of the combined company, as described in more detail under the section entitled **Comparison of Stockholders Rights** beginning on page 188.

Listing of Entegris Common Stock; Delisting and Deregistration of Versum Common Stock (Page 126)

If the merger is completed, Versum common stock will be delisted from the NYSE and deregistered under the Exchange Act, and Versum will no longer be required to file periodic reports with the SEC with respect to Versum common stock.

Versum has agreed to cooperate with Entegris and use its reasonable best efforts to take, or cause to be taken, all actions, and do or cause to be done all things, reasonably necessary, proper or advisable on its part under applicable laws and rules and policies of the NYSE to enable the delisting of the shares of Versum common stock from the NYSE and the deregistration of the shares of Versum common stock under the Exchange Act as promptly as practicable after the effective time.

Litigation Related to the Merger (Page 126)

Following the public announcement of the merger, purported stockholders of Versum have filed five putative class action lawsuits and one individual lawsuit against Versum, the members of the Versum board of directors and, in the case of two of the putative class actions, Broadridge Corporate Issuer Solutions, Inc. and, in the case of another of the putative class actions, Entegris. The lawsuits contain allegations contending, among other things, that the registration statement on Form S-4, of which this joint proxy statement/prospectus forms a part, misleads and fails to disclose certain allegedly material information in violation of federal securities laws and that the Versum board of directors breached their fiduciary duties. The lawsuits seek injunctive relief enjoining the merger, damages and costs, among other remedies. The defendants have not yet answered or otherwise responded to the complaints. Versum, the Versum board of directors and Entegris believe these lawsuits are without merit and intend to defend against them vigorously.

Risk Factors (Page 43)

In evaluating the merger agreement, the merger or the issuance of shares of Entegris common stock in the merger, you should carefully read this joint proxy statement/prospectus and give special consideration to the factors discussed in the section entitled **Risk Factors** beginning on page 43.

Table of Contents**SELECTED HISTORICAL CONSOLIDATED FINANCIAL DATA OF ENTEGRIS**

The following table presents selected historical condensed consolidated financial data for Entegris as of and for the years ended December 31, 2018, 2017, 2016, 2015 and 2014. The selected historical condensed consolidated financial data for each of the years ended December 31, 2018, 2017 and 2016, as of December 31, 2018 and 2017 were derived from Entegris Annual Report on Form 10-K filed on February 11, 2019, incorporated herein by reference. The selected historical condensed consolidated financial data for Entegris as of and for each of the years ended December 31, 2015 and 2014, and as of December 31, 2016, 2015 and 2014 have been derived from Entegris audited financial statements for such years, which have not been incorporated by reference into this joint proxy statement/prospectus.

The selected historical consolidated financial data set forth below is not necessarily indicative of future results of Entegris and should be read together with the other information contained in Management's Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and related notes included in Entegris Annual Report on Form 10-K filed on February 11, 2019, which is incorporated herein by reference.

See the section entitled **Where You Can Find More Information** beginning on page 213.

	Years Ended December 31,				
	2018	2017	2016	2015	2014
	(Amounts in thousands, except per share data)				
Consolidated Statement of Operations Data:					
Total Revenues	\$ 1,550,497	\$ 1,342,532	\$ 1,175,270	\$ 1,081,121	\$ 962,069
Net Income	240,755	85,066	97,147	80,296	7,887
Net Earnings per Common to ENTG:					
Basic	\$ 1.71	\$ 0.60	\$ 0.69	\$ 0.57	\$ 0.06
Diluted	\$ 1.69	\$ 0.59	\$ 0.68	\$ 0.57	\$ 0.06
Average common shares outstanding:					
Basic	141,026	141,553	141,093	140,353	139,311
Diluted	142,610	143,518	142,050	141,121	140,062
Cash dividends paid on ENTG common stock	\$ 39,591	\$ 9,896	\$	\$	\$
Cash dividends declared per common share	\$ 0.28	\$ 0.07	\$	\$	\$

	Years Ended December 31,				
	2018	2017	2016	2015	2014
	(Amounts in thousands, except per share data)				
Consolidated Balance Sheets Data:					
Cash and cash equivalents	\$ 482,062	\$ 625,408	\$ 406,389	\$ 349,825	\$ 389,699
Short-term investments				2,181	4,601
Total assets ⁽¹⁾	2,317,641	1,976,172	1,699,532	1,646,697	1,748,307
Long-term debt ⁽¹⁾⁽²⁾	938,863	674,380	584,677	656,044	753,012
Equity	1,012,025	993,018	899,218	802,883	748,441

(1)

Total assets and long-term debt, net of discount have been restated as of December 31, 2015 and 2014 to reflect the retroactive reclassification of debt issuance costs with ASU 2015-03, Simplifying the Presentation of Debt Issuance Costs.

- (2) Includes current and non-current portion.

Table of Contents**SELECTED HISTORICAL CONSOLIDATED FINANCIAL DATA OF VERSUM**

The following table presents selected historical condensed consolidated financial data for Versum as of and for the years ended September 30, 2018, 2017, 2016, 2015 and 2014 and as of and for the three month periods ended December 31, 2018 and December 31, 2017. The selected historical condensed consolidated financial data as of and for each of the years ended September 30, 2018, 2017, 2016, 2015 and 2014 were derived from Versum's Annual Report on Form 10-K filed on November 21, 2018, incorporated herein by reference. The selected historical condensed consolidated financial data as of and for the three month periods ended December 31, 2018 and December 31, 2017 were derived from Versum's unaudited condensed consolidated financial statements included in Versum's Quarterly Report on Form 10-Q for the quarter ended December 31, 2018, incorporated herein by reference. Versum's unaudited condensed consolidated financial statements as of and for the three month periods ended December 31, 2018 and December 31, 2017 include, in Versum's opinion, all adjustments necessary for a fair statement of the results of the interim periods presented.

Prior to the October 1, 2016 legal separation, which is referred to as the separation, resulting in the allocation, transfer and assignment to Versum of the assets, liabilities and operations of the Electronic Materials business of Air Products, and the creation of a separate, publicly traded company, Versum, the selected historical condensed consolidated financial data included certain expenses of Air Products that were allocated to Versum for certain functions, including general corporate expenses related to finance, legal, information technology, insurance, compliance and human resources activities, employee benefits and incentives and stock-based compensation. These past costs included in Versum's historical information prior to the separation may not be representative of the costs incurred by Versum after the separation as an independent, publicly traded company.

In addition, Versum's historical financial information prior to the separation did not reflect changes as a result of its separation from Air Products, including changes in Versum's cost structure, personnel needs, tax structure, capital structure, financing and business operations. Prior to the separation, Versum's financial information also did not reflect the assignment of certain assets and liabilities between Air Products and Versum. Consequently, the historical financial information of Versum prior to the separation included here may not necessarily reflect what Versum's financial position, results of operations, and cash flows would have been had it been an independent, publicly traded company during the periods presented prior to the separation. Accordingly, the historical results of Versum prior to the separation should not be relied upon as an indicator of Versum's future performance.

Amounts disclosed in the table below have been adjusted for Versum's conversion effective the fourth quarter of 2018 from the last in, first out cost method, which is referred to as the LIFO cost method, to the first in, first out cost method for determining the cost of inventories in the United States, which were Versum's only operations that were using the LIFO cost method. Versum applied this change retrospectively to all prior periods presented.

The selected historical consolidated financial data set forth below is not necessarily indicative of future results of Versum and should be read together with the other information contained in Management's Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and related notes included in Versum's Annual Report on Form 10-K filed on November 21, 2018 and Versum's Quarterly Report on Form 10-Q for the quarter ended December 31, 2018 filed on February 7, 2019, each of which is incorporated herein by reference.

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See the section entitled **Where You Can Find More Information** beginning on page 213.

	Three Months Ended		Fiscal Year Ended				
	December 31,	December 31,	2018	2017	2016	2015	2014
	2018	2017	2018	2017	2016	2015	2014
	(In millions, except per share data)						
State of operations data:							
Net sales	\$ 339.5	\$ 330.8	\$ 1,372.3	\$ 1,126.9	\$ 970.1	\$ 1,009.3	\$ 942.5
Income from continuing operations before income taxes	82.8	75.7	323.6	253.2	276.0	225.9	166.0
Income from continuing operations	63.1	20.7	204.7	200.2	217.2	194.2	134.1
Per share data:							
Earnings from continuing operations allocable to Versum common stockholders:							
Basic	0.56	0.17	1.81	1.78	1.93	1.72	1.17
Diluted	0.56	0.17	1.80	1.77	1.93	1.72	1.17
Cash dividends declared per common share	0.08	0.05	0.22	0.10			
Balance Sheet data (at period end):							
Total assets	1,545.4	1,331.1	1,505.3	1,255.6	1,052.1	898.4	1,042.0
Long-term debt	979.0	982.9	980.0	982.8	986.1		

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SELECTED UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

The following table shows a summary of the unaudited pro forma condensed combined financial information about the financial condition and results of operations of the combined company, after giving effect to the merger, which were prepared using the acquisition method of accounting with Entegris as the accounting acquirer of Versum. See the section entitled **The Merger Accounting Treatment** beginning on page 125.

Entegris' fiscal year ends on December 31, whereas Versum's fiscal year ends on September 30. Due to this difference in year end, for the purpose of the unaudited pro forma condensed combined statement of operations for the twelve months ended December 31, 2018 the Versum financial results for the twelve months ended December 31, 2018 have been calculated by adding its financial results for the three months ended December 31, 2018 to its financial results for the twelve months ended September 30, 2018 and subtracting its financial results for the three months ended December 31, 2017. The unaudited pro forma condensed combined statement of operations, which is referred to as the pro forma statement of operations, for the twelve months ended December 31, 2018 combines the Entegris audited consolidated statement of operations for the year ended December 31, 2018 and the Versum financial results for the twelve months ended December 31, 2018. This gives effect to the merger as if it had been consummated on January 1, 2018.

The pro forma balance sheet and the pro forma statement of operations are collectively referred to as the pro forma financial statements.

The pro forma financial statements should be read in conjunction with the accompanying notes to the pro forma financial statements. In addition, the pro forma financial statements were based on and should be read in conjunction with the following historical consolidated financial statements and accompanying notes of Entegris and Versum for the applicable periods, which are incorporated by reference into this joint proxy statement/prospectus:

Separate historical financial statements of Entegris as of and for the fiscal year ended December 31, 2018 and the related notes included in Entegris' Annual Report on Form 10-K for the year ended December 31, 2018.

Separate historical financial statements of Versum as of and for the fiscal year ended September 30, 2018 and the related notes included in Versum's Annual Report on Form 10-K for the year ended September 30, 2018 as well as the separate historical financial statements of Versum as of and for the fiscal quarter ended December 31, 2018 and the related notes included in Versum's Quarterly Report on Form 10-Q for the quarter ended December 31, 2018.

The pro forma financial statements have been prepared for illustrative purposes only and are not necessarily indicative of what the combined company's operating results or financial position would actually have been had the merger been completed as of the dates indicated. In addition, the pro forma financial statements include adjustments which are preliminary and may be revised. The pro forma financial statements do not purport to project the future financial position or operating results of the combined company. Future results may vary significantly from the results reflected because of various factors, including those discussed in the section entitled **Risk Factors** beginning on page 43.

The pro forma financial statements have been developed from and should be read in conjunction with the section entitled **Unaudited Pro Forma Condensed Combined Financial Statements** and the notes related thereto beginning on page 158 and with the historical consolidated financial statements of Entegris and Versum and related notes that

have been filed with the SEC, certain of which are incorporated by reference into this joint proxy statement.

Table of Contents**Selected Unaudited Pro forma Condensed Combined Financial Information**

	Year ended December 31, 2018
Pro forma condensed combined statement of operations data:	
Net sales	\$ 2,927,825
Net income	352,731
Net income attributable to Entegris	345,495
Basic earnings per share	1.31
Diluted earnings per share	1.30
Pro forma condensed combined balance sheet data:	
Total assets	\$ 8,393,950
Total liabilities	3,037,746
Total equity	5,356,204

Table of Contents**COMPARATIVE HISTORICAL AND UNAUDITED PRO FORMA PER SHARE DATA****Equivalent and Comparative Per Share Information**

The following table sets forth selected per share information for Entegris common stock on a historical basis for the year ended December 31, 2018, selected per share information for Versum common stock on a historical basis for the twelve month period ended December 31, 2018, selected per share information for the combined company's common stock on a pro forma combined basis for the year ended December 31, 2018, and selected per share information for Versum common stock on a pro forma equivalent basis for the twelve month period ended December 31, 2018. The per share information reflects the Entegris common stock and Versum common stock issued and outstanding.

The combined company's pro forma combined earnings per share was calculated in the section entitled **Unaudited Pro Forma Condensed Combined Financial Statements** beginning on page 158.

	Year ended December 31, 2018			
	Entegris - Historical	Versum - Historical	Pro forma Combined	Versum Equivalent Pro forma ²
Income from continuing operations per common share attributable to common stockholders (basic)	\$ 1.71	\$ 2.20	\$ 1.31	\$ 1.47
Income from continuing operations per common share attributable to common stockholders (diluted)	\$ 1.69	\$ 2.19	\$ 1.30	\$ 1.46
Cash dividends per share ¹	\$ 0.28	\$ 0.25	\$ 0.28	\$ 0.31
Book value per share ³	\$ 7.44	\$ 2.12	\$ 20.57	\$ 23.04

- (1) Pro forma combined amounts are the same as Entegris' historical cash dividends per share under the assumption that there is no change to Entegris' dividend policy as a result of the merger.
- (2) Versum's pro forma equivalent per share amounts were calculated by multiplying Entegris' pro forma combined per share amounts by the Exchange Ratio.
- (3) Amount is calculated by dividing stockholders' equity by common shares outstanding.

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**COMPARISON OF ENTEGRIS AND VERSUM MARKET PRICES AND
IMPLIED VALUE OF MERGER CONSIDERATION**

The following table sets forth the closing sale price per share of Entegris common stock and Versum common stock as reported on NASDAQ and the NYSE, respectively, as of January 25, 2019, the last trading day prior to the public announcement of the merger, and on March 11, 2019, the last practicable trading day before the filing of this joint proxy statement/prospectus with the SEC. The table also shows the estimated implied value of the per share consideration proposed for each share of Versum common stock as of the same two dates. This implied value was calculated by multiplying the closing price of a share of Entegris common stock on the relevant date by the exchange ratio of 1.120 shares of Entegris common stock for each share of Versum common stock.

	Entegris Common Stock	Versum Common Stock	Implied Per Share Value of Merger Consideration
January 25, 2019	\$ 31.32	\$ 31.65	\$ 35.08
March 11, 2019	\$ 35.51	\$ 48.86	\$ 39.77

The market prices of Entegris common stock and Versum common stock have fluctuated prior to and after the date of the announcement of the merger agreement and will continue to fluctuate prior to the completion of the merger. No assurance can be given concerning the market prices of Entegris common stock or Versum common stock before completion of the merger or of the market price of the common stock of the combined company after completion of the merger. Because the exchange ratio is fixed and will not be adjusted for changes in the market prices of either Entegris common stock or Versum common stock, the market price of Entegris common stock (and, therefore, the value of the merger consideration) when received by Versum stockholders after the merger is completed could be greater than, less than or the same as shown in the table above. Accordingly, these comparisons may not provide meaningful information to Entegris stockholders and Versum stockholders in determining how to vote with respect to the proposals described in this joint proxy statement/prospectus. Entegris stockholders and Versum stockholders are encouraged to obtain current market quotations for Entegris common stock and Versum common stock and to review carefully the other information contained in this joint proxy statement/prospectus or incorporated by reference into this joint proxy statement/prospectus. For more information, see the section entitled **Where You Can Find More Information** beginning on page 213.

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CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This registration statement on Form S-4, of which this joint proxy statement/prospectus forms a part, and the documents to which Versum and Entegris refer you to in this registration statement, as well as oral statements made or to be made by Entegris and Versum, include certain forward-looking statements within the meaning of, and subject to the safe harbor created by, Section 27A of the Securities Act, Section 21E of the Exchange Act and the Private Securities Litigation Reform Act of 1995, which are referred to as the safe harbor provisions with respect to the businesses, strategies and plans of Entegris and Versum, their expectations relating to the merger and their future financial condition and performance. Statements included in or incorporated by reference into this registration statement, of which this joint proxy statement/prospectus forms a part, that are not historical facts are forward-looking statements, including statements about the beliefs and expectations of the management of each of Entegris and Versum. Words such as believe, continue, could, expect, anticipate, intends, estimate, forecast, project, will, would or the negative thereof and similar expressions are intended to identify such forward-looking statements that are intended to be covered by the safe harbor provisions. Entegris and Versum caution investors that any forward-looking statements are subject to known and unknown risks and uncertainties, many of which are outside Entegris and Versum's control, and which may cause actual results and future trends to differ materially from those matters expressed in, or implied or projected by, such forward-looking statements, which speak only as of the date of this joint proxy statement/prospectus. Investors are cautioned not to place undue reliance on these forward-looking statements. Among the risks and uncertainties that could cause actual results to differ from those described in forward-looking statements are the following:

the occurrence of any change, event, series of events or circumstances that could give rise to the termination of the merger agreement, including a termination of the merger agreement under circumstances that could require Versum to pay the Versum termination fee to Entegris or require Entegris to pay the Entegris termination fee to Versum;

uncertainties related to the timing of the receipt of required regulatory approvals for the merger and the possibility that Versum and Entegris may be required to accept conditions that could reduce or eliminate the anticipated benefits of the merger as a condition to obtaining regulatory approvals or that the required regulatory approvals might not be obtained at all;

the stock price for Entegris common stock and Versum common stock could change before the completion of the merger, including as a result of uncertainty as to the long-term value of the common stock of the combined company following the merger or as a result of broader stock market movements;

the inability to complete the merger due to the failure, or unexpected delays, of Versum stockholders to adopt the merger agreement or of Entegris stockholders to adopt the merger agreement, or the failure to satisfy other conditions to the completion of the merger;

delays in closing, or the failure to close, the merger for any reason could negatively impact Entegris or Versum;

risks that the merger and the other transactions contemplated by the merger agreement disrupt current plans and operations that may harm Entegris or Versum's respective businesses;

difficulties or delays in integrating the businesses of Entegris and Versum following completion of the merger or fully realizing the anticipated synergies and other benefits expected from the merger;

certain restrictions during the pendency of the proposed merger that may impact the ability of Entegris or Versum to pursue certain business opportunities or strategic transactions;

the outcome of any legal proceedings that have been or may be instituted against Entegris, Versum and/or others relating to the merger;

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risks related to the diversion of the attention and time of Entegris or Versum's respective management teams from ongoing business concerns;

the risk that the proposed merger and any announcement relating to the proposed merger could have an adverse effect on the ability of Entegris or Versum to retain and hire key personnel or maintain relationships with customers, suppliers, vendors, or other third parties, standing with regulators, the U.S. government or other governments, or on Entegris or Versum's respective operating results and businesses generally;

the amount of any costs, fees, expenses, impairments or charges related to the merger;

the potential dilution of Entegris stockholders' and Versum stockholders' ownership percentage of the combined company as a result of the merger;

the business, economic and political conditions in the countries in which Entegris or Versum operate;

events beyond Entegris' and Versum's control, such as acts of terrorism; and

the potential dilution of the combined company's earnings per share as a result of the merger.

For further discussion of these and other risks, contingencies and uncertainties applicable to Entegris and Versum, see the section entitled **Risk Factors** beginning on page 43 and in Entegris' and Versum's other filings with the SEC incorporated by reference into this joint proxy statement/prospectus. See also the section entitled **Where You Can Find More Information** beginning on page 213 for more information about the SEC filings incorporated by reference into this joint proxy statement/prospectus.

All subsequent written or oral forward-looking statements attributable to Entegris or Versum or any person acting on its or their behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Neither Versum nor Entegris is under any obligation, and each expressly disclaims any obligation, to update, alter, or otherwise revise any forward-looking statements, whether written or oral, that may be made from time to time, whether as a result of new information, future events or otherwise, except as may be required by law.

Table of Contents**RISK FACTORS**

*In deciding whether to vote for the adoption of the merger agreement and the adoption of the amended and restated certificate of incorporation of Entegris, in the case of Entegris stockholders, or the adoption of the merger agreement, in the case of Versum stockholders, you are urged to carefully consider all of the information included or incorporated by reference in this joint proxy statement/prospectus, which is listed in the section entitled **Where You Can Find More Information** beginning on page 213. You should also read and consider the risks associated with each of the businesses of Entegris and Versum because these risks will also affect the combined company. The risks associated with the business of Entegris can be found in Entegris Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and the risks associated with the business of Versum can be found in Versum's Annual Report on Form 10-K for the year ended September 30, 2018, as such risks may be updated or supplemented in each company's subsequently filed Quarterly Reports on Form 10-Q or Current Reports on Form 8-K (excluding any information and exhibits furnished under Item 2.02 or 7.01 thereof), each of which are incorporated by reference into this joint proxy statement/prospectus. In addition, you are urged to carefully consider the following material risks relating to the merger, the business of Entegris, the business of Versum and the business of the combined company.*

Risks Relating to the Merger

Because the exchange ratio is fixed and will not be adjusted in the event of any change in either Entegris or Versum's stock price, the value of the shares of the combined company is uncertain.

Upon completion of the merger, each share of Versum common stock outstanding immediately prior to the merger, other than Versum excluded shares, will be converted into and become exchangeable for 1.120 shares of Entegris common stock. This exchange ratio is fixed in the merger agreement and will not be adjusted for changes in the market price of either Entegris common stock or Versum common stock. The market prices of Entegris common stock and Versum common stock have fluctuated prior to and after the date of the announcement of the merger agreement and will continue to fluctuate from the date of this joint proxy statement/prospectus to the date of the Entegris special meeting and the Versum special meeting, respectively, and the date the merger is consummated, and the market price of the common stock of the combined company will continue to fluctuate thereafter.

Because the value of the merger consideration will depend on the market price of Entegris common stock at the time the merger is completed, Versum stockholders will not know or be able to determine at the time of the Versum special meeting the market value of the merger consideration they would receive upon completion of the merger. Similarly, Entegris stockholders will not know or be able to determine at the time of the Entegris special meeting the market value of the shares of Entegris common stock to be issued pursuant to the merger agreement compared to the market value of the shares of Versum common stock that are being exchanged in the merger.

Stock price changes may result from a variety of factors, including, among others, general market and economic conditions, changes in Entegris or Versum's respective businesses, operations and prospects, reductions or changes in U.S. government spending or budgetary policies, market assessments of the likelihood that the merger will be completed, interest rates, general market, industry and economic conditions and other factors generally affecting the respective prices of Entegris or Versum's common stock, federal, state and local legislation, governmental regulation and legal developments in the industry segments in which Versum or Entegris operate, and the timing of the merger and receipt of required regulatory approvals.

Many of these factors are beyond Entegris and Versum's control, and neither Entegris nor Versum are permitted to terminate the merger agreement solely due to a decline in the market price of the common stock of the other party. You are urged to obtain current market quotations for Entegris common stock and Versum common stock in

determining whether to vote for the adoption of the merger agreement and the adoption of the amended and restated certificate of incorporation of Entegris in the case of Entegris stockholders or for the

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adoption of the merger agreement in the case of Versum stockholders. In addition, see the section entitled **Comparison of Entegris and Versum Market Prices and Implied Value of Merger Consideration** beginning on page 40.

The merger may not be completed and the merger agreement may be terminated in accordance with its terms.

The merger is subject to a number of conditions that must be satisfied, including the approval by Entegris stockholders of the Entegris merger agreement proposal and approval by Versum stockholders of the Versum merger agreement proposal, or waived (to the extent permissible), in each case prior to the completion of the merger. These conditions are described in the section entitled **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152. These conditions to the completion of the merger, some of which are beyond the control of Entegris and Versum, may not be satisfied or waived in a timely manner or at all, and, accordingly, the merger may be delayed or not completed.

Additionally, either Entegris or Versum may terminate the merger agreement under certain circumstances, including, among other reasons, if the merger is not completed by January 28, 2020 (which date may be extended to April 28, 2020 under certain circumstances if certain regulatory approvals are not obtained by January 28, 2020). In addition, if the merger agreement is terminated under certain circumstances specified in the merger agreement, Versum may be required to pay Entegris a termination fee of \$140 million, including certain circumstances in which the Versum board of directors effects a change of recommendation (as defined in the section entitled **The Merger Agreement No Change of Recommendation** beginning on page 142) or Versum enters into an agreement with respect to a superior proposal following the termination of the merger agreement. In addition, if the merger agreement is terminated under certain circumstances specified in the merger agreement, Entegris may be required to pay Versum a termination fee of \$155 million, including certain circumstances in which the Entegris board of directors effects a change of recommendation or Entegris enters into an agreement with respect to a superior proposal following the termination of the merger agreement. See the section entitled **The Merger Agreement Termination of the Merger Agreement** beginning on page 153 and the section entitled **The Merger Agreement Termination Fees** beginning on page 155 for a more complete discussion of the circumstances under which the merger agreement could be terminated and when a termination fee may be payable by Entegris or Versum.

The termination of the merger agreement could negatively impact Entegris or Versum.

If the merger is not completed for any reason, including as a result of a failure to obtain the required Versum vote or the required Entegris vote, the ongoing businesses of Entegris and Versum may be adversely affected and, without realizing any of the benefits of having completed the merger, Entegris and Versum would be subject to a number of risks, including the following:

each company may experience negative reactions from the financial markets, including negative impacts on its stock price;

each company may experience negative reactions from its suppliers, customers and employees;

each company will be required to pay their respective costs relating to the merger, such as financial advisory, legal, financing and accounting costs and associated fees and expenses, whether or not the merger is

completed;

the merger agreement places certain restrictions on the conduct of each company's business prior to completion of the merger and such restrictions, the waiver of which is subject to the consent of the other company (not to be unreasonably withheld, conditioned or delayed), which may prevent Entegris or Versum from making certain acquisitions or taking certain other specified actions during the pendency of the merger (see the section entitled **The Merger Agreement Conduct of Business Prior to the Effective Time** beginning on page 136 for a description of the restrictive covenants applicable to Entegris and Versum); and

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matters relating to the merger (including integration planning) will require substantial commitments of time and resources by Entegris management and Versum management, which could otherwise have been devoted to day-to-day operations or to other opportunities that may have been beneficial to Entegris or Versum, as applicable, as an independent company.

The market price for shares of common stock of the combined company following the completion of the merger may be affected by factors different from, or in addition to, those that historically have affected or currently affect the market prices of shares of Entegris common stock and Versum common stock.

Upon consummation of the merger, Entegris stockholders and Versum stockholders will both hold shares of common stock in the combined company. Entegris' businesses differ from those of Versum, and Versum's businesses differ from those of Entegris, and, accordingly, the results of operations of the combined company will be affected by some factors that are different from those currently or historically affecting the results of operations of Entegris and those currently or historically affecting the results of operations of Versum. The results of operations of the combined company may also be affected by factors different from those that currently affect or have historically affected either Entegris or Versum. For a discussion of the businesses of each of Entegris and Versum and some important factors to consider in connection with those businesses, please see the section entitled **The Parties to the Merger** beginning on page 58 and the documents and information included elsewhere in this joint proxy statement/prospectus or incorporated by reference into this joint proxy statement/prospectus and listed under the section entitled **Where You Can Find More Information** beginning on page 213.

The shares of common stock of the combined company to be received by Versum stockholders as a result of the merger will have rights different from the shares of Versum common stock.

Upon consummation of the merger, the rights of Versum stockholders, who will become stockholders of the combined company, will be governed by the certificate of incorporation and bylaws of the combined company. The rights associated with Versum common stock are different from the rights which will be associated with the common stock of the combined company. See the section entitled **Comparison of Stockholders' Rights** beginning on page 188 for a discussion of these rights.

Entegris stockholders and Versum stockholders will each have reduced ownership and voting interest in and will exercise less influence over management of the combined company.

Entegris stockholders currently have the right to vote in the election of the Entegris board of directors and on other matters affecting Entegris, and Versum stockholders currently have the right to vote in the election of the Versum board of directors and on other matters affecting Versum. Upon consummation of the merger, each Entegris stockholder and each Versum stockholder will become a stockholder of the combined company with a percentage ownership of the combined company that is smaller than such stockholder's percentage ownership of Entegris or Versum, as applicable, immediately prior to the merger. As of the date of this joint proxy statement/prospectus, based on the exchange ratio of 1.120 and the estimated number of shares of common stock of Entegris and Versum that will be outstanding immediately prior to the completion of the merger, including exercisable options, Entegris and Versum estimate that holders of shares of Entegris common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 52.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger, and holders of shares of Versum common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 47.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger. Because of this, each share of Entegris common stock and each share of Versum common stock will represent a smaller

percentage ownership of the combined company than it represented in Entegris or Versum, respectively. In addition, directors of Entegris and

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directors of Versum, in each case, as of immediately prior to the effective time, who will be determined prior to closing by mutual agreement of the parties, will respectively represent five and four of the nine members of the combined company's board of directors as of the effective time. Accordingly, each Entegris stockholder and each Versum stockholder will have less influence on the management and policies of the combined company than such stockholder now has on the management and policies of Entegris or Versum, as applicable.

Until the completion of the merger or the termination of the merger agreement in accordance with its terms, Entegris and Versum are each prohibited from entering into certain transactions and taking certain actions that might otherwise be beneficial to Entegris or Versum and their respective stockholders.

From and after the date of the merger agreement and prior to completion of the merger, the merger agreement restricts Entegris and Versum from taking specified actions without the consent of the other party and requires that the business of each company and its respective subsidiaries be conducted in all material respects in the ordinary course of business consistent with past practice. These restrictions may prevent Entegris or Versum from making appropriate changes to their respective businesses or organizational structures or from pursuing attractive business opportunities that may arise prior to the completion of the merger, and could have the effect of delaying or preventing other strategic transactions. Adverse effects arising from the pendency of the merger could be exacerbated by any delays in consummation of the merger or termination of the merger agreement. See the section entitled **The Merger Agreement Conduct of Business Prior to the Effective Time** beginning on page 136.

Obtaining required approvals and satisfying closing conditions may prevent or delay completion of the merger.

The merger is subject to a number of conditions to closing as specified in the merger agreement. These closing conditions include, among others, approval for listing on NASDAQ or the NYSE of the shares of Entegris common stock to be issued pursuant to the merger agreement, the expiration or earlier termination of any applicable waiting period, and the receipt of approvals under, U.S. and foreign antitrust and competition laws in China, Germany, Japan, South Korea, and Taiwan, the absence of governmental restraints or prohibitions preventing the consummation of the merger, the effectiveness of the registration statement on Form S-4 registering the Entegris common stock issuable pursuant to the merger agreement and the absence of any stop order or proceedings by the SEC with respect thereto. The obligation of each of Versum and Entegris to consummate the merger is also conditioned on, among other things, the receipt by such party of a written opinion from such party's counsel, to the effect that for U.S. federal income tax purposes the merger will qualify as a reorganization within the meaning of Section 368(a) of the Code, the absence of a material adverse effect on the other party, the truth and correctness of the representations and warranties made by the other party on the date of the merger agreement and on the closing date (subject to certain materiality qualifiers), and the performance by the other party in all material respects of its obligations under the merger agreement. No assurance can be given that the required stockholder, governmental and regulatory consents and approvals will be obtained or that the required conditions to closing will be satisfied, and, if all required consents and approvals are obtained and the conditions are satisfied, no assurance can be given as to the terms, conditions and timing of such consents and approvals. Any delay in completing the merger could cause the combined company not to realize, or to be delayed in realizing, some or all of the benefits that Entegris and Versum expect to achieve if the merger is successfully completed within its expected time frame. For a more complete summary of the conditions that must be satisfied or waived prior to completion of the merger, see the section entitled **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152.

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Entegris and Versum must obtain certain regulatory approvals and clearances to consummate the merger, which, if delayed, not granted or granted with unacceptable conditions, could prevent, substantially delay or impair consummation of the merger, result in additional expenditures of money and resources or reduce the anticipated benefits of the merger.

The completion of the merger is subject to the receipt of antitrust clearance in the United States and in China, Germany, Japan, South Korea and Taiwan.

With respect to the United States, under the HSR Act, the merger may not be completed until Notification and Report Forms have been filed with the FTC and the DOJ and the applicable waiting period has expired or been terminated. A transaction requiring notification under the HSR Act may not be completed until the expiration of a 30-calendar-day waiting period following the parties' filing of their respective HSR notifications or the early termination of that waiting period. Entegris and Versum each filed an HSR notification with the FTC and the DOJ on February 6, 2019 and the waiting period expired at 11:59 p.m. Eastern Time on March 8, 2019. With respect to Germany, clearance was received on March 19, 2019.

At any time before or after consummation of the merger, notwithstanding the expiration or termination of the applicable waiting period under the HSR Act, the DOJ or the FTC, or any state, could take such action under the antitrust laws as it deems necessary or desirable in the public interest, including seeking to enjoin the completion of the merger, seeking divestiture of substantial assets of the parties or requiring the parties to license, or hold separate, assets or terminate existing relationships and contractual rights. At any time before or after the completion of the merger, and notwithstanding the expiration or termination of the applicable waiting period under the HSR Act, any state could take such action under the antitrust laws as it deems necessary or desirable in the public interest. Such action could include seeking to enjoin the completion of the merger or seeking divestiture of substantial assets of the parties. Private parties may also seek to take legal action under the antitrust laws under certain circumstances.

The merger is also subject to clearance or approval by antitrust authorities in certain other jurisdictions. The merger cannot be completed until Entegris and Versum obtain clearance to consummate the merger or applicable waiting periods have expired or been terminated in each applicable jurisdiction. Entegris and Versum, in consultation and cooperation with each other, will file notifications, as required with antitrust authorities in certain other jurisdictions, as promptly as practicable after the date of the merger agreement. The relevant antitrust authorities could take such actions under the applicable antitrust laws as they deem necessary or desirable, including seeking divestiture of substantial assets of the parties or requiring the parties to license, or hold separate, assets or terminate existing relationships and contractual rights. Any one of these requirements, limitations, costs, divestitures or restrictions could jeopardize or delay the completion of or reduce the anticipated benefits of the merger. There is no assurance that Entegris and Versum will obtain all required antitrust clearances or approvals on a timely basis, or at all. Failure to obtain the necessary clearance in any of these jurisdictions could substantially delay or prevent the consummation of the merger, which could negatively impact both Entegris and Versum.

Failure to attract, motivate and retain executives and other key employees could diminish the anticipated benefits of the merger.

The success of the merger will depend in part on the retention of personnel critical to the business and operations of the combined company due to, for example, their technical skills or management expertise. Competition for qualified personnel can be intense.

Current and prospective employees of Entegris and Versum may experience uncertainty about their future role with Entegris and Versum until strategies with regard to these employees are announced or executed, which may impair

Entegris and Versum's ability to attract, retain and motivate key management, sales, marketing, technical and other personnel prior to and following the merger. Employee retention may be particularly challenging during the pendency of the merger, as employees of Entegris and Versum may experience

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uncertainty about their future roles with the combined company. If Entegris and Versum are unable to retain personnel, including Entegris' and Versum's key management, who are critical to the successful integration and future operations of the companies, Entegris and Versum could face disruptions in their operations, loss of existing customers or loss of sales to existing customers, loss of key information, expertise or know-how, and unanticipated additional recruitment and training costs. In addition, the loss of key personnel could diminish the anticipated benefits of the merger.

If key employees of Entegris or Versum depart, the integration of the companies may be more difficult and the combined company's business following the merger may be harmed. Furthermore, the combined company may have to incur significant costs in identifying, hiring and retaining replacements for departing employees and may lose significant expertise and talent relating to the business of each of Entegris or Versum, and the combined company's ability to realize the anticipated benefits of the merger may be adversely affected. In addition, there could be disruptions to or distractions for the workforce and management associated with activities of labor unions or integrating employees into the combined company. No assurance can be given that the combined company will be able to attract or retain key employees of Entegris and Versum to the same extent that those companies have been able to attract or retain their own employees in the past.

The merger, and uncertainty regarding the merger, may cause customers, suppliers or strategic partners to delay or defer decisions concerning Entegris and Versum and adversely affect each company's ability to effectively manage their respective businesses.

The merger will happen only if the stated conditions are met, including the adoption of the merger agreement by Entegris stockholders and Versum stockholders and the receipt of regulatory approvals, among other conditions. Many of the conditions are outside the control of Entegris and Versum, and both parties also have certain rights to terminate the merger agreement. Accordingly, there may be uncertainty regarding the completion of the merger. This uncertainty may cause customers, suppliers, vendors, strategic partners or others that deal with Entegris or Versum to delay or defer entering into contracts with Entegris or Versum or making other decisions concerning Entegris or Versum or seek to change or cancel existing business relationships with Entegris or Versum, which could negatively affect their respective businesses. Any delay or deferral of those decisions or changes in existing agreements could have an adverse impact on the respective businesses of Entegris and Versum, regardless of whether the merger is ultimately completed.

In addition, the merger agreement restricts Entegris, Versum and their respective subsidiaries from making certain acquisitions and taking other specified actions until the merger occurs without the consent of the other parties. These restrictions may prevent Entegris and Versum from pursuing attractive business opportunities or strategic transactions that may arise prior to the completion of the merger. See the section entitled **The Merger Agreement Conduct of Business Prior to the Effective Time** beginning on page 136 for a description of the restrictive covenants to which each of Entegris and Versum is subject.

The opinions rendered to Entegris and Versum from their respective financial advisors will not reflect changes in circumstances between the dates of such opinions and the completion of the merger.

Morgan Stanley delivered its oral opinion to the Entegris board of directors on January 27, 2019, which opinion was subsequently confirmed in a written opinion dated January 27, 2019, that as of such date and based upon and subject to the various assumptions made, procedures followed, matters considered, and qualifications and limitations on the scope of the review undertaken by Morgan Stanley as set forth in the written opinion, the exchange ratio pursuant to the merger agreement was fair from a financial point of view to Entegris. Lazard rendered an oral opinion to the Versum board of directors on January 27, 2019, subsequently confirmed in writing by delivery of Lazard's opinion

dated as of the same date, to the effect that, as of such date, and based upon and subject to the assumptions, procedures, factors, qualifications and limitations set forth in its written opinion, the exchange ratio in the merger was fair, from a financial point of view, to Versum stockholders (other than the holders of Versum excluded shares).

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Neither Entegris nor Versum has obtained, nor will obtain, an updated opinion regarding the fairness, from a financial point of view, of the exchange ratio as of the date of this joint proxy statement/prospectus or prior to the completion of the merger from Morgan Stanley or from Lazard. Each of Morgan Stanley's opinion and Lazard's opinion was necessarily based on economic, monetary, market and other conditions as in effect on, and the information made available to Morgan Stanley and Lazard, as applicable, only as of the dates of the respective opinions of Morgan Stanley and Lazard and does not address the fairness of the exchange ratio, from a financial point of view, at the time the merger is completed. Changes in the operations and prospects of Entegris or Versum, general economic, monetary, market and other conditions and other factors that may be beyond the control of Entegris and Versum, and on which the opinion of Morgan Stanley and the opinion of Lazard was based, may alter the value of Entegris or Versum or the prices of shares of Entegris common stock or Versum common stock by the time the merger is completed. The opinions of Morgan Stanley and Lazard do not speak as of any date other than the respective dates of such opinions. The recommendation of the Entegris board of directors that Entegris stockholders vote **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal and the recommendation of the Versum board of directors that Versum stockholders vote **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal are each made as of the date of this joint proxy statement/prospectus. For a description of the opinion that Versum and Entegris received from their respective financial advisors, please see the sections entitled **The Merger Opinion of Entegris Financial Advisor** beginning on page 96 and **The Merger Opinion of Versum's Financial Advisor** beginning on page 107.

Whether or not the merger is completed, the announcement and pendency of the merger could cause disruptions in the businesses of Entegris and Versum, which could have an adverse effect on their respective businesses and financial results.

Whether or not the merger is completed, the announcement and pendency of the merger could cause disruptions in the businesses of Entegris and Versum. Specifically:

current and prospective employees of Entegris and Versum will experience uncertainty about their future roles with the combined company, which might adversely affect Entegris' or Versum's abilities to retain key managers and other employees; and

the attention of management of each of Entegris and Versum may be directed toward the completion of the merger.

In addition, Entegris and Versum have each diverted significant management resources in an effort to complete the merger and are each subject to restrictions contained in the merger agreement on the conduct of their respective businesses. If the merger is not completed, Entegris and Versum will have incurred significant costs, including the diversion of management resources, for which they will have received little or no benefit.

The directors and executive officers of Entegris and Versum have interests and arrangements that may be different from, or in addition to, those of Entegris and Versum stockholders generally.

When considering the recommendations of the boards of directors of Entegris or Versum, as applicable, with respect to the proposals described in this joint proxy statement/prospectus, stockholders should be aware that the directors and executive officers of each of Entegris and Versum have interests in the merger that are different from, or in addition to, those of Entegris stockholders and Versum stockholders generally. These interests include the continued

employment of certain executive officers of Entegris and Versum by the combined company, the continued service of certain directors of Entegris and Versum as directors of the combined company, the treatment in the merger of outstanding equity, equity-based and incentive awards, severance arrangements, other compensation and benefit arrangements, and the right to continued indemnification of former Entegris and Versum directors and officers by the combined company.

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Entegris stockholders and Versum stockholders should be aware of these interests when they consider the recommendations of the respective Entegris and Versum boards of directors that they vote to adopt the merger agreement and to adopt the amended and restated certificate of incorporation of Entegris, in the case of Entegris, or that they adopt the merger agreement, in the case of Versum. The Entegris board of directors was aware of these interests when it approved and declared advisable the merger agreement and the transactions contemplated thereby on the terms and subject to the conditions set forth in the merger agreement and recommended that Entegris stockholders adopt the merger agreement and adopt the amended and restated certificate of incorporation of Entegris. The interests of Entegris directors and executive officers are described in more detail in the section entitled **Interests of Entegris Directors and Executive Officers in the Merger** beginning on page 170. Likewise, the Versum board of directors was aware of these interests when it approved and declared advisable the merger agreement, the merger and the transactions contemplated thereby on the terms and subject to the conditions set forth in the merger agreement, determined that the merger agreement, the merger and the transactions contemplated by the merger agreement were fair to, and in the best interests of, Versum and Versum stockholders and recommended that Versum stockholders adopt the merger agreement. The interests of Versum directors and executive officers are described in more detail in the section entitled **Interests of Versum s Directors and Executive Officers in the Merger** beginning on page 176.

Entegris or Versum may waive one or more of the closing conditions without re-soliciting stockholder approval.

Entegris or Versum may determine to waive, in whole or part, one or more of the conditions of its obligations to consummate the merger. Entegris and Versum currently expect to evaluate the materiality of any waiver and its effect on Entegris or Versum stockholders, as applicable, in light of the facts and circumstances at the time to determine whether any amendment of this joint proxy statement/prospectus or any re-solicitation of proxies or voting cards is required in light of such waiver. Any determination whether to waive any condition to the merger or as to re-soliciting stockholder approval or amending this joint proxy statement/prospectus as a result of a waiver will be made by Entegris or Versum, as applicable, at the time of such waiver based on the facts and circumstances as they exist at that time.

The merger agreement contains provisions that could discourage a potential competing acquirer that might be willing to pay more to acquire or merge with either Entegris or Versum.

The merger agreement contains no shop provisions that restrict each of Entegris and Versum s ability to, among other things (each as described under the section entitled **The Merger Agreement No Solicitation of Acquisition Proposals** beginning on page 140):

initiate, solicit, propose, knowingly encourage (including by way of furnishing information) or knowingly take any action designed to facilitate any inquiry regarding, or the making of any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to, an acquisition proposal;

engage in, continue or otherwise participate in any discussions with or negotiations relating to, or otherwise cooperate in any way with, any acquisition proposal or any inquiry, proposal or offer that would reasonably be expected to lead to an acquisition proposal (other than to state that the terms of the merger agreement prohibits such discussions or negotiations);

provide any nonpublic information to any person in connection with any acquisition proposal or any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to an acquisition proposal; or

otherwise knowingly facilitate any effort or attempt to make an acquisition proposal or any inquiry, proposal or offer that constitutes or would reasonably be expected to lead to an acquisition proposal.

Furthermore, there are only limited exceptions to the requirement under the merger agreement that neither the Entegris board of directors nor the Versum board of directors adversely withhold, withdraw, qualify or

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modify the Entegris recommendation or the Versum recommendation, as applicable (each as defined in the section entitled **The Merger Agreement Representations and Warranties** beginning on page 133). Although the Entegris board of directors is permitted to effect a change of recommendation, after complying with certain procedures set forth in the merger agreement, in response to a superior proposal or an intervening event, if it determines in good faith that a failure to do so would be inconsistent with its fiduciary duties, such change of recommendation would entitle Versum to terminate the merger agreement and collect a termination fee from Entegris in the amount of \$155 million. Although the Versum board of directors is permitted to effect a change of recommendation, after complying with certain procedures set forth in the merger agreement, in response to a superior proposal or an intervening event, if it determines in good faith that a failure to do so would be inconsistent with its fiduciary duties, such change of recommendation would entitle Entegris to terminate the merger agreement and collect a termination fee from Versum in the amount of \$140 million. For more information, see the sections titled **The Merger Agreement Termination of the Merger Agreement** beginning on page 153 and **The Merger Agreement Termination Fees** beginning on page 155.

These provisions could discourage a potential competing acquirer from considering or proposing an acquisition or merger, even if it were prepared to pay consideration with a higher value than that implied by the exchange ratio in the merger, or might result in a potential competing acquirer proposing to pay a lower per share price than it might otherwise have proposed to pay because of the added expense of the termination fee.

Each of Entegris and Versum will incur significant transaction, merger-related and restructuring costs in connection with the merger.

Entegris and Versum have incurred and expect to incur a number of non-recurring costs associated with combining the operations of the two companies, as well as transaction fees and other costs related to the merger. These costs and expenses include fees paid to financial, legal and accounting advisors, facilities and systems consolidation costs, severance and other potential employment-related costs, including retention and severance payments that may be made to certain Entegris employees and Versum employees, filing fees, printing expenses and other related charges. Some of these costs are payable by Entegris or Versum regardless of whether the merger is completed.

The combined company will also incur restructuring and integration costs in connection with the merger. The costs related to restructuring will be expensed as a cost of the ongoing results of operations of either Entegris or Versum or the combined company. There are a large number of processes, policies, procedures, operations, technologies and systems that must be integrated in connection with the merger and the integration of the two companies' businesses. Although Entegris and Versum expect that the elimination of duplicative costs, strategic benefits, additional income as well as the realization of other efficiencies related to the integration of the businesses, may offset incremental transaction, merger-related and restructuring costs over time, any net benefit may not be achieved in the near term or at all. Many of these costs will be borne by Entegris or Versum even if the merger is not completed. While both Entegris and Versum have assumed that certain expenses would be incurred in connection with the merger and the other transactions contemplated by the merger agreement, there are many factors beyond their control that could affect the total amount or the timing of the integration and implementation expenses.

Entegris stockholders and Versum stockholders will not be entitled to appraisal rights in the merger.

Appraisal rights are statutory rights that, if applicable under law, enable stockholders of a corporation to dissent from an extraordinary transaction, such as a merger, and to demand that such corporation pay the fair value for their shares as determined by a court in a judicial proceeding instead of receiving the consideration offered to such stockholders in connection with the transaction. Under the DGCL, stockholders do not have appraisal rights if the shares of stock they hold are either listed on a national securities exchange or held of record by more than 2,000 holders. Notwithstanding

the foregoing, appraisal rights are available if stockholders are required by the terms of the merger agreement to accept for their shares anything other than (a) shares of stock of

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the surviving corporation, (b) shares of stock of another corporation that will either be listed on a national securities exchange or held of record by more than 2,000 holders, (c) cash in lieu of fractional shares or (d) any combination of the foregoing.

Because the merger is of Versum with and into Entegris and holders of Entegris common stock will continue to hold their shares following completion of the merger, holders of Entegris common stock are not entitled to appraisal rights in the merger.

Because shares of Entegris common stock are listed on NASDAQ, a national securities exchange, and are expected to continue to be so listed or listed on the NYSE, a national securities exchange, and because Versum stockholders are not required by the terms of the merger agreement to accept for their shares anything other than shares of Entegris common stock and cash in lieu of fractional shares, holders of Versum common stock will not be entitled to appraisal rights in the merger. See the section entitled **No Appraisal Rights** beginning on page 204.

Litigation filed against Versum, the Versum board of directors and Entegris could prevent or delay the consummation of the merger or result in the payment of damages following completion of the merger.

In connection with the merger, purported stockholders of Versum have filed five putative class action lawsuits and one individual lawsuit against one or more of Versum, the members of the Versum board of directors, Entegris and Broadridge Corporate Issuer Solutions, Inc. Among other remedies, the plaintiffs in these lawsuits seek to enjoin the merger and any vote on the merger. The outcome of any such litigation is uncertain. If a dismissal is not granted or a settlement is not reached, these lawsuits could prevent or delay completion of the merger and result in substantial costs to Versum and Entegris, including any costs associated with indemnification. Additional lawsuits in connection with the merger may be filed against Versum, Entegris and/or their respective directors and officers, which additional lawsuits could also prevent or delay the consummation of the merger and result in additional costs to Versum and Entegris. The ultimate resolution of these lawsuits cannot be predicted with certainty, and an adverse ruling in any such lawsuit may cause the merger to be delayed or not to be completed, which could cause Versum and Entegris not to realize some or all of the anticipated benefits of the merger. The defense or settlement of any lawsuit or claim that remains unresolved at the time the merger is consummated may adversely affect the combined company's business, financial condition, results of operations and cash flows. Versum and Entegris cannot currently predict the outcome of or reasonably estimate the possible loss or range of loss from any these lawsuits or claims. See **The Merger Litigation Related to the Merger** beginning on page 126 for more information about the lawsuits that have been filed related to the merger.

Risks Relating to the Combined Company

The failure to successfully combine the businesses of Entegris and Versum may adversely affect the combined company's future results.

The success of the merger will depend, in part, on the ability of the combined company to realize anticipated benefits from combining the businesses of Entegris and Versum. To realize these anticipated benefits, the businesses of Entegris and Versum must be successfully combined. If the combined company is not able to achieve these objectives, the anticipated benefits of the merger may not be realized fully or at all, or may take longer to realize than expected.

The combined company may not be able to retain customers or suppliers or customers or suppliers may seek to modify contractual obligations with the combined company, which could have an adverse effect on the combined company's business and operations. Third parties may terminate or alter existing contracts or relationships with Entegris or Versum.

As a result of the merger, the combined company may experience impacts on relationships with customers and suppliers that may harm the combined company's business and results of operations. Certain customers or suppliers may seek to terminate or modify contractual obligations following the merger whether or not

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contractual rights are triggered as a result of the merger. There can be no guarantee that customers and suppliers will remain with or continue to have a relationship with the combined company or do so on the same or similar contractual terms following the merger. If any customers or suppliers seek to terminate or modify contractual obligations or discontinue the relationship with the combined company, then the combined company's business and results of operations may be harmed. Furthermore, the combined company will not have long-term arrangements with many of its significant suppliers. If the combined company's suppliers were to seek to terminate or modify an arrangement with the combined company, then the combined company may be unable to procure necessary supplies from other suppliers in a timely and efficient manner and on acceptable terms, or at all.

Entegris and Versum also have contracts with vendors, landlords, licensors and other business partners which may require Entegris or Versum, as applicable, to obtain consent from these other parties in connection with the merger. If these consents cannot be obtained, the combined company may suffer a loss of potential future revenue, incur costs, and lose rights that may be material to the business of the combined company. In addition, third parties with whom Entegris or Versum currently have relationships may terminate or otherwise reduce the scope of their relationship with either party in anticipation of the merger. Any such disruptions could limit the combined company's ability to achieve the anticipated benefits of the merger. The adverse effect of any such disruptions could also be exacerbated by a delay in the completion of the merger or by a termination of the merger agreement.

The combined company may be exposed to increased litigation, which could have an adverse effect on the combined company's business and operations.

The combined company may be exposed to increased litigation from stockholders, customers, suppliers, consumers and other third parties due to the combination of Entegris's business and Versum's business following the merger. Such litigation may have an adverse impact on the combined company's business and results of operations or may cause disruptions to the combined company's operations.

Combining the businesses of Entegris and Versum may be more difficult, costly or time-consuming than expected and the combined company may fail to realize the anticipated benefits of the merger, which may adversely affect the combined company's business results and negatively affect the value of the common stock of the combined company following the merger.

The success of the merger will depend on, among other things, the ability of Entegris and Versum to combine their businesses in a manner that facilitates growth opportunities and realizes cost savings. Entegris and Versum have entered into the merger agreement because each believes that the merger and the other transactions contemplated by the merger agreement are fair to and in the best interests of its respective stockholders and that combining the businesses of Entegris and Versum will produce benefits and cost savings. See also the section entitled **The Merger Recommendation of the Entegris Board of Directors; Entegris Reasons for the Merger** beginning on page 87 and **The Merger Recommendation of the Versum Board of Directors; Versum's Reasons for the Merger** beginning on page 91.

However, Entegris and Versum must successfully combine their respective businesses in a manner that permits these benefits to be realized. In addition, the combined company must achieve the anticipated growth and cost savings without adversely affecting current revenues and investments in future growth. If the combined company is not able to successfully achieve these objectives, the anticipated benefits of the merger may not be realized fully, or at all, or may take longer to realize than expected.

An inability to realize the full extent of the anticipated benefits of the merger and the other transactions contemplated by the merger agreement, as well as any delays encountered in the integration process, could have an adverse effect

upon the revenues, level of expenses and operating results of the combined company, which may adversely affect the value of the common stock of the combined company after the completion of the merger.

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In addition, the actual integration may result in additional and unforeseen expenses, and the anticipated benefits of the integration plan may not be realized. Actual growth and cost savings, if achieved, may be lower than what Entegris and Versum expect and may take longer to achieve than anticipated. If Entegris and Versum are not able to adequately address integration challenges, they may be unable to successfully integrate their operations or realize the anticipated benefits of the integration of the two companies.

The failure to successfully integrate the businesses and operations of Entegris and Versum in the expected time frame may adversely affect the combined company's future results.

Entegris and Versum have operated and, until the completion of the merger, will continue to operate independently. There can be no assurances that their businesses can be integrated successfully. It is possible that the integration process could result in the loss of key Entegris employees or key Versum employees, the loss of customers, the disruption of either company's or both companies' ongoing businesses, inconsistencies in standards, controls, procedures and policies, unexpected integration issues, higher than expected integration costs and an overall post-completion integration process that takes longer than originally anticipated. Specifically, the following issues, among others, must be addressed in integrating the operations of Entegris and Versum in order to realize the anticipated benefits of the merger so the combined company performs as expected:

combining the companies' operations and corporate functions;

combining the businesses of Entegris and Versum and meeting the capital requirements of the combined company, in a manner that permits the combined company to achieve any cost savings or revenue synergies anticipated to result from the merger, the failure of which would result in the anticipated benefits of the merger not being realized in the time frame currently anticipated or at all;

integrating personnel from the two companies;

integrating the companies' technologies;

integrating and unifying the offerings and services available to customers;

identifying and eliminating redundant and underperforming functions and assets;

harmonizing the companies' operating practices, employee development and compensation programs, internal controls and other policies, procedures and processes;

maintaining existing agreements with customers, distributors, providers and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, providers and vendors;

addressing possible differences in business backgrounds, corporate cultures and management philosophies;

consolidating the companies' administrative and information technology infrastructure;

coordinating distribution and marketing efforts;

managing the movement of certain positions to different locations;

coordinating geographically dispersed organizations; and

effecting actions that may be required in connection with obtaining regulatory approvals.

In addition, at times the attention of certain members of either company or both companies' management and resources may be focused on completion of the merger and the integration of the businesses of the two companies and diverted from day-to-day business operations or other opportunities that may have been beneficial to such company, which may disrupt each company's ongoing business and the business of the combined company.

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Furthermore, the board of directors and executive leadership of the combined company will consist of former directors and executive officers from each of Entegris and Versum. Combining the boards of directors and management teams of each company into a single board and a single management team could require the reconciliation of differing priorities and philosophies.

The Entegris and Versum unaudited prospective financial information is inherently subject to uncertainties, the unaudited pro forma financial data included in this document is preliminary and the combined company's actual financial position and results of operations after the merger may differ materially from these estimates and the unaudited pro forma financial data included in this joint proxy statement/prospectus. The unaudited pro forma combined financial data does not reflect the effect of any divestitures that may be required in connection with the merger.

The unaudited pro forma combined financial statements and unaudited pro forma per share data included in this joint proxy statement/prospectus are presented for illustrative purposes only, contain a variety of adjustments, assumptions and preliminary estimates and are not necessarily indicative of what the combined company's actual financial position or results of operations would have been had the merger been completed on the dates indicated. The combined company's actual results and financial position after the merger may differ materially and adversely from the unaudited pro forma financial data included in this joint proxy statement/prospectus. The unaudited pro forma combined financial information does not reflect the effect of any divestitures that may be required in connection with the merger. For more information, see the sections entitled **Comparative Historical and Unaudited Pro Forma Per Share Data** beginning on page 39 and **Unaudited Pro Forma Condensed Combined Financial Statements** beginning on page 158.

While presented with numeric specificity, the Entegris and Versum unaudited prospective financial information provided in this joint proxy statement/prospectus is based on numerous variables and assumptions (including, but not limited to, those related to industry performance and competition, general business, the specialty materials and related industries, and economic, market and financial conditions and additional matters specific to Entegris or Versum's business, as applicable) that are inherently subjective and uncertain and are beyond the control of the respective management teams of Entegris and Versum. As a result, actual results may differ materially from the unaudited prospective financial information. Important factors that may affect actual results and cause these unaudited projected financial forecasts to not be achieved include, but are not limited to, risks and uncertainties relating to Entegris or Versum's business, as applicable (including each company's ability to achieve strategic goals, objectives and targets over applicable periods), industry performance, general business and economic conditions. For more information see the sections entitled **The Merger Entegris Unaudited Financial Projections** beginning on page 115, **The Merger Versum Unaudited Financial Projections** beginning on page 118 and **The Merger Certain Estimated Synergies** beginning on page 121.

The combined company may be unable to retain Entegris and Versum personnel successfully after the merger is completed.

The success of the merger will depend in part on the combined company's ability to retain the talents and dedication of the professionals currently employed by Entegris and Versum. It is possible that these employees may decide not to remain with Entegris or Versum, as applicable, while the merger is pending, or with the combined company after the merger is consummated. If key employees terminate their employment, or if an insufficient number of employees are retained to maintain effective operations, the combined company's business activities may be adversely affected and management's attention may be diverted from successfully integrating Entegris and Versum to hiring suitable replacements, all of which may cause the combined company's business to suffer. In addition, Entegris and Versum may not be able to locate suitable replacements for any key employees that leave either company or offer employment

to potential replacements on reasonable terms.

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The combined company's debt may limit its financial flexibility.

Entegris and Versum continue to review the treatment of their existing indebtedness. Entegris and Versum may seek to repay, refinance, repurchase, redeem, exchange or otherwise terminate their existing indebtedness prior to, in connection with or following the completion of the merger. If either Entegris or Versum seeks to refinance its existing indebtedness, there can be no guarantee that it will be able to execute the refinancing on favorable terms or at all. Alternatively, Entegris and Versum may seek to leave all or a portion of their existing indebtedness outstanding as the primary obligation of the combined company or to incur additional indebtedness or refinancing indebtedness prior to, in connection with or following the completion of the merger.

Entegris or Versum's substantial indebtedness could have adverse effects on such company's and/or the combined company's financial condition and results of operations, including:

increasing its vulnerability to changing economic, regulatory and industry conditions;

limiting its ability to compete and its flexibility in planning for, or reacting to, changes in its business and the industry;

limiting its ability to pay dividends to its stockholders;

limiting its ability to borrow additional funds; and

increasing its interest expense and requiring it to dedicate a substantial portion of its cash flow from operations to payments on its debt, thereby reducing funds available for working capital, capital expenditures, acquisitions, share repurchases, dividends and other purposes.

The companies' ability to arrange any additional financing for the purposes described above or otherwise will depend on, among other factors, the companies' respective financial positions and performance, as well as prevailing market conditions and other factors beyond their control. The level and quality of the combined company's earnings, operations, business and management, among other things, will impact the determination of the combined company's credit ratings. A decrease in the ratings assigned to the combined company by the ratings agencies may negatively impact the combined company's access to the debt capital markets and increase the combined company's cost of borrowing. There can be no assurance that the combined company will be able to obtain financing on acceptable terms or at all. In addition, there can be no assurance that the combined company will be able to maintain the current credit worthiness or prospective credit ratings of Entegris or Versum, and any actual or anticipated changes or downgrades in such credit ratings may have a negative impact on the liquidity, capital position or access to capital markets of the combined company.

If the existing indebtedness of Entegris and/or Versum remains outstanding, or if either company refinances its existing indebtedness, covenants contained in the agreements governing such indebtedness will impose restrictions on the combined company and certain of its subsidiaries that may affect their ability to operate their businesses.

The agreements that govern the indebtedness of Entegris and Versum, in addition to any refinanced indebtedness, may contain various affirmative and negative covenants. Such covenants may, subject to certain significant exceptions, restrict the ability of the combined company and certain of its subsidiaries to, among other things, incur liens, incur debt, engage in mergers, consolidations and acquisitions, transfer assets outside the ordinary course of business, make loans or other investments, pay dividends, repurchase equity interests, make other payments with respect to equity interests, repay or repurchase subordinated debt and engage in affiliate transactions. In addition, the agreements governing the existing indebtedness of Entegris and Versum contain financial covenants that would require the combined company to maintain certain financial ratios under certain circumstances. The ability of the combined company and its subsidiaries to comply with these provisions may be affected by events beyond their control. Failure to comply with these covenants could result in an event of default, which, if not cured or waived, could accelerate the combined company's repayment obligations.

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Declaration, payment and amounts of dividends, if any, distributed to stockholders of the combined company will be uncertain.

Whether any dividends are declared or paid to stockholders of the combined company following the merger, and the amounts of any such dividends that are declared or paid, are uncertain and depend on a number of factors. If dividends are paid to stockholders of the combined company, they may not be of the same amount as paid by Entegris or Versum to their respective stockholders prior to the merger. The board of directors of the combined company will have the discretion to determine the dividend policy of the combined company, which may be impacted by any of the following factors:

the combined company may not have enough cash to pay such dividends or to repurchase shares due to its cash requirements, capital spending plans, cash flow or financial position;

decisions on whether, when and in which amounts to make any future distributions will remain at all times entirely at the discretion of the combined company's board of directors, which could change its dividend practices at any time and for any reason;

the combined company's desire to maintain or improve the credit ratings on its debt;

the amount of dividends that the combined company may distribute to its stockholders is subject to restrictions under Delaware law and is limited by restricted payment and leverage covenants in the combined company's credit facilities and indentures and, potentially, the terms of any future indebtedness that the combined company may incur; and

certain limitations on the amount of dividends subsidiaries of the combined company can distribute to the combined company, as imposed by state law, regulators or agreements.

Stockholders should be aware that they have no contractual or other legal right to dividends that have not been declared.

Risks Relating to Entegris Business

Entegris business will continue to be subject to the risks described in the sections entitled "Risk Factors" in Entegris Annual Report on Form 10-K for the fiscal year ended December 31, 2018, and in other documents incorporated by reference into this joint proxy statement/prospectus. See the section entitled **Where You Can Find More Information** beginning on page 213 for the location of information incorporated by reference into this joint proxy statement/prospectus.

Risks Relating to Versum's Business

Versum's business will continue to be subject to the risks described in the sections entitled "Risk Factors" in Versum's Annual Report on Form 10-K for the year ended September 30, 2018, Versum's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2018 and in other documents incorporated by reference into this joint proxy

statement/prospectus. See the section entitled **Where You Can Find More Information** beginning on page 213 for the location of information incorporated by reference into this joint proxy statement/prospectus.

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THE PARTIES TO THE MERGER

Entegris, Inc.

129 Concord Road

Billerica, Massachusetts 01821

(978) 436-6500

Entegris is a leading global developer, manufacturer and supplier of microcontamination control products, specialty chemicals and advanced materials handling solutions for manufacturing processes in the semiconductor and other high-technology industries. Entegris operates in three segments: Specialty Chemicals and Engineered Materials, Microcontamination Control and Advanced Materials Handling.

Entegris common stock is listed on NASDAQ under the ticker symbol ENTG.

For more information about Entegris, please visit Entegris website at <http://www.entegris.com>. The information contained on Entegris website or accessible through it (other than the documents incorporated by reference herein) does not constitute a part of this joint proxy statement/prospectus or any other report or document on file with or furnished to the SEC. Additional information about Entegris is included in the documents incorporated by reference into this joint proxy statement/prospectus. See the section entitled **Where You Can Find More Information** beginning on page 213.

Versum Materials, Inc.

8555 South River Parkway

Tempe, Arizona 85284

(602) 282-1000

Versum is a global provider of innovative solutions to the semiconductor and display industries with expertise in the development, manufacturing, transportation and handling of specialty materials. Versum employs expertise in molecular design and synthesis, purification, advanced analytics, formulation development and containers and delivery systems for the handling of high purity materials to deliver leading-edge solutions and critical process support to Versum's customers.

Versum common stock is listed on the NYSE under the ticker symbol VSM.

For more information about Versum, please visit Versum's website at <http://www.versummaterials.com>. The information contained on Versum's website or accessible through it (other than the documents incorporated by reference herein) does not constitute a part of this joint proxy statement/prospectus or any other report or document on file with or furnished to the SEC. Additional information about Versum is included in the documents incorporated by reference into this joint proxy statement/prospectus. See the section entitled **Where You Can Find More Information** beginning on page 213.

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THE ENTEGRIS SPECIAL MEETING

This joint proxy statement/prospectus is first being mailed on or about March 22, 2019 and constitutes notice of the Entegris special meeting in conformity with the requirements of the DGCL and the by-laws of Entegris, which are referred to as the Entegris by-laws.

This joint proxy statement/prospectus is being provided to Entegris stockholders as part of a solicitation of proxies by the Entegris board of directors for use at the Entegris special meeting and at any adjournments or postponements of the Entegris special meeting. Entegris stockholders are encouraged to read the entire document carefully, including the annexes to and documents incorporated by reference into this document, for more detailed information regarding the merger agreement and the transactions contemplated by the merger agreement.

Date, Time and Place of the Entegris Special Meeting

The Entegris special meeting is scheduled to be held at Entegris headquarters at 129 Concord Road, Billerica, Massachusetts, on April 26, 2019, beginning at 12:00 p.m., Eastern Time, unless postponed to a later date.

Matters to be Considered at the Entegris Special Meeting

The purposes of the Entegris special meeting are as follows, each as further described in this joint proxy statement/prospectus:

Entegris Proposal 1: Adoption of the Merger Agreement. To consider and vote on the Entegris merger agreement proposal;

Entegris Proposal 2: Adoption of the Amended and Restated Certificate of Incorporation of Entegris. To consider and vote on the Entegris charter proposal;

Entegris Proposal 3: Approval, on an Advisory (Non-Binding) Basis, of Certain Compensatory Arrangements with Entegris Named Executive Officers. To consider and vote on the Entegris compensation proposal; and

Entegris Proposal 4: Adjournments of the Entegris Special Meeting. To consider and vote on the Entegris adjournment proposal.

Recommendation of the Entegris Board of Directors

The Entegris board of directors unanimously recommends that Entegris stockholders vote:

Entegris Proposal 1: FOR the Entegris merger agreement proposal;

Entegris Proposal 2: FOR the Entegris charter proposal;

Entegris Proposal 3: FOR the Entegris compensation proposal; and

Entegris Proposal 4: FOR the Entegris adjournment proposal.

After careful consideration, the Entegris board of directors unanimously (1) determined that the merger agreement and the transactions contemplated thereby, including but not limited to the merger, the share issuance and the adoption of the amended and restated certificate of incorporation on the terms set forth in the merger agreement are fair to, and in the best interests of, Entegris and the holders of shares of Entegris common stock; (2) approved and declared advisable the merger agreement and the transactions contemplated thereby, including the merger, on the terms and subject to the conditions set forth in the merger agreement; (3) directed that the share issuance and the merger agreement be submitted to the holders of shares of Entegris common stock for their approval and adoption, and the amended and restated certificate of incorporation be submitted to the holders of shares of Entegris common stock for their adoption; and (4) resolved to recommend that the holders of shares of Entegris common stock vote in favor of the adoption of the merger agreement, including the approval of the share issuance, and the adoption of the amended and restated certificate of incorporation.

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See also the section entitled **The Merger Recommendation of the Entegris Board of Directors; Entegris Reasons for the Merger** beginning on page 87.

Record Date for the Entegris Special Meeting and Voting Rights

The record date to determine who is entitled to receive notice of and to vote at the Entegris special meeting or any adjournments or postponements thereof is April 2, 2019. As of the close of business on March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, there were 135,513,636 shares of Entegris common stock issued and outstanding, each entitled to vote at the Entegris special meeting. Each Entegris stockholder will have one vote for any matter properly brought before the Entegris special meeting for each share of Entegris common stock such holder owned at the close of business on the Entegris record date. Only Entegris stockholders of record at the close of business on the Entegris record date are entitled to receive notice of and to vote at the Entegris special meeting and any and all adjournments or postponements thereof.

Quorum; Abstentions and Broker Non-Votes

A quorum of stockholders is necessary to conduct the Entegris special meeting. The holders of a majority of the shares of Entegris common stock issued and outstanding and entitled to vote at the meeting must be represented at the Entegris special meeting in person or by proxy in order to constitute a quorum. Abstentions will be counted for purposes of determining whether a quorum exists. If a quorum is not present, the Entegris special meeting will be postponed until the holders of the number of shares of Entegris common stock required to constitute a quorum attend.

Banks, brokers or other nominees who hold shares in street name for a beneficial owner of those shares typically have the authority to vote in their discretion on routine proposals when they have not received instructions from beneficial owners. However, banks, brokers or other nominees are not allowed to exercise their voting discretion with respect to the approval of matters that the NASDAQ determines to be non-routine. Generally, a broker non-vote occurs on an item when a bank, broker or other nominee returns a proxy but does not provide instructions as to how shares should be voted on a particular matter. Because none of the proposals to be voted on at the Entegris special meeting are routine matters for which brokers may have discretionary authority to vote, Entegris does not expect any broker non-votes at the Entegris special meeting. As a result, if you hold your shares of Entegris common stock in street name, your shares will not be represented and will not be voted on any matter unless you affirmatively instruct your bank, broker or other nominee how to vote your shares in one of the ways indicated by your bank, broker or other nominee. It is therefore critical that you cast your vote by instructing your bank, broker or other nominee on how to vote.

If you submit a properly executed WHITE proxy card, even if you abstain from voting or vote against the adoption of the merger or the amended and restated certificate of incorporation, your shares of Entegris common stock will be counted for purposes of calculating whether a quorum is present at the Entegris special meeting. Executed but unvoted proxies will be voted in accordance with the recommendations of the Entegris board of directors. If additional votes must be solicited to adopt the merger agreement and the amended and restated certificate of incorporation, it is expected that the meeting will be adjourned to solicit additional proxies.

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Required Votes; Vote of Entegris Directors and Executive Officers

Except for the Entegris adjournment proposal, the vote required to approve all of the proposals listed herein assumes the presence of a quorum.

Proposal	Votes Necessary
Entegris Proposal 1 Entegris merger agreement proposal	<p>Approval requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on the Entegris merger agreement proposal.</p> <p>A failure to vote, a broker non-vote or an abstention will have the same effect as a vote AGAINST the Entegris merger agreement proposal.</p>
Entegris Proposal 2 Entegris charter proposal	<p>Approval requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on the Entegris charter proposal.</p> <p>A failure to vote, a broker non-vote or an abstention will have the same effect as a vote AGAINST the Entegris charter proposal.</p>
Entegris Proposal 3 Entegris compensation proposal	<p>Approval requires the affirmative vote of a majority of votes properly cast on the Entegris compensation proposal.</p> <p>An abstention, a broker non-vote or other failure to vote will have no effect on the outcome of the Entegris compensation proposal.</p>
Entegris Proposal 4 Entegris adjournment proposal	<p>Approval requires the approval of the holders of a majority of shares present at the Entegris special meeting.</p> <p>An abstention will have the same effect as a vote AGAINST the Entegris adjournment proposal, while a broker non-vote or other failure to vote will have no effect on the outcome of the Entegris adjournment proposal.</p>

As of March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, Entegris directors and executive officers and their affiliates, as a group, owned and were entitled to vote 1,125,061 shares of

Entegris common stock, or approximately 0.8% of the total outstanding shares of Entegris common stock. Although none of them has entered into any agreement obligating them to do so, Entegris currently expects that all of its directors and executive officers will vote their shares **FOR** the Entegris merger agreement proposal, **FOR** the Entegris charter proposal, **FOR** the Entegris compensation proposal and **FOR** the Entegris adjournment proposal. See also the section entitled **Interests of Entegris Directors and Executive Officers in the Merger** beginning on page 170 and the arrangements described in Part III of Entegris Annual Report on Form 10-K for the fiscal year ended on December 31, 2018 and Entegris Definitive Proxy Statement on Schedule 14A for Entegris 2019 annual meeting filed with the SEC on March 20, 2019, both of which are incorporated into this joint proxy statement/prospectus by reference.

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Methods of Voting

If you are a stockholder of record, you may vote by proxy through the Internet, by telephone or by mail, or by voting in person at the Entegris special meeting. For shares held through a bank, broker or other nominee in street name instead of as a registered holder, you may vote by submitting your voting instructions to your bank, broker or other nominee. In most instances, you will be able to do this over the Internet, by telephone or by mail as indicated below. Please refer to the information from your bank, broker or other nominee on how to submit voting instructions. If you do not provide voting instructions to your bank, broker or other nominee, your shares of Entegris common stock will not be voted on any proposal as your bank, broker or other nominee does not have discretionary authority to vote on any of the proposals to be voted on at the Entegris special meeting; see the section entitled **The Entegris Special Meeting Quorum; Abstentions and Broker Non-Votes** beginning on page 60.

By Internet: If you are a stockholder of record, you can vote at www.proxyvote.com and follow the instructions, 24 hours a day, seven days a week. You will need the 16-digit control number included on your WHITE proxy card or your paper voting instruction form (if you received a paper copy of the proxy materials).

By Telephone: If you are a stockholder of record, you can vote using a touch-tone telephone by calling 1-800-690-6903 and follow the recorded instructions, 24 hours a day, seven days a week. You will need the 16-digit control number included on your WHITE proxy card or your paper voting instruction form (if you received a paper copy of the proxy materials).

By Mail: If you have received a paper copy of the proxy materials by mail, you may complete, sign, date and return by mail the paper WHITE proxy card or voting instruction form sent to you in the envelope provided to you with your proxy materials or voting instruction form.

In Person: All stockholders of record may vote in person at the Entegris special meeting. If you hold your shares through a bank, broker or other nominee in street name (instead of as a registered holder), you must obtain a legal proxy from your bank, broker or other nominee and bring the legal proxy to the meeting in order to vote in person at the Entegris special meeting. For more information on how to attend in person, see the section entitled **The Entegris Special Meeting Attending the Entegris Special Meeting** beginning on page 63.

If you are a stockholder of record, proxies submitted over the Internet, by telephone or by mail as described above must be received by 11:59 p.m., Eastern Time, on April 25, 2019.

Notwithstanding the above, if your shares are held in street name by a bank, broker or other nominee, you should follow the instructions you receive from your bank, broker or other nominee on how to vote your shares. Registered stockholders who attend the Entegris special meeting may vote their shares personally even if they previously have voted their shares.

If you deliver a proxy pursuant to this joint proxy statement/prospectus, but do not specify a choice with respect to any proposal set forth in this joint proxy statement/prospectus, your underlying shares of Entegris common stock will be voted on such uninstructed proposal in accordance with the recommendation of the Entegris board of directors.

Entegris does not expect that any matter other than the proposals listed above will be brought before the Entegris special meeting and Entegris by-laws provide that the only business that may be conducted at the Entegris special meeting are those proposals brought before the meeting pursuant to this joint proxy statement/prospectus.

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Revocability of Proxies

Any stockholder giving a proxy has the right to revoke it before the proxy is voted at the Entegris special meeting by any of the following actions:

by sending a signed written notice that you revoke your proxy to Entegris corporate secretary, bearing a later date than your original proxy and mailing it so that it is received prior to the Entegris special meeting;

by subsequently submitting a new proxy (including by submitting a proxy via the Internet or telephone) at a later date than your original proxy so that the new proxy is received by the deadline specified on the accompanying WHITE proxy card; or

by revoking your proxy and voting in person at the Entegris special meeting.

Execution or revocation of a proxy will not in any way affect the stockholder's right to attend the special meeting and vote in person.

Written notices of revocation and other communications with respect to the revocation of proxies should be addressed to:

Entegris, Inc.

Attn: Corporate Secretary

129 Concord Road

Billerica, Massachusetts 01821

If your shares are held in street name and you previously provided voting instructions to your broker, bank or other nominee, you should follow the instructions provided by your broker, bank or other nominee to revoke or change your voting instructions.

Proxy Solicitation Costs

Entegris is soliciting proxies to provide an opportunity to all Entegris stockholders to vote on agenda items, whether or not the stockholders are able to attend the Entegris special meeting or an adjournment or postponement thereof. Entegris will bear the entire cost of soliciting proxies from its stockholders, except that Versum and Entegris have agreed to each pay one half of the costs and expenses of filing, printing and mailing this joint proxy statement/prospectus and all filing and other similar fees payable to the SEC in connection with this joint proxy statement/prospectus. In addition to the solicitation of proxies by mail, Entegris will ask banks, brokers and other custodians, nominees and fiduciaries to forward the proxy solicitation materials to the beneficial owners of shares of Entegris common stock held of record by such nominee holders. Entegris may be required to reimburse these nominee holders for their customary clerical and mailing expenses incurred in forwarding the proxy solicitation materials to the beneficial owners.

Entegris has retained MacKenzie to assist in the solicitation process. Entegris estimates that it will pay MacKenzie a fee of approximately \$25,000, plus reimbursement of reasonable expenses. Entegris also has agreed to indemnify MacKenzie against various liabilities and expenses that relate to or arise out of its solicitation of proxies (subject to certain exceptions). Proxies may be solicited on behalf of Entegris or by Entegris directors, officers and other employees in person, by mail, by telephone, by facsimile, by messenger, via the Internet or by other means of communication, including electronic communication. Directors, officers and employees of Entegris will not be paid any additional amounts for their services or solicitation in this regard.

Attending the Entegris Special Meeting

You are entitled to attend the Entegris special meeting only if you are a stockholder of record of Entegris at the close of business on April 2, 2019 (the record date for the Entegris special meeting) or you hold your shares

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of Entegris beneficially in the name of a broker, bank or other nominee as of the Entegris record date, or you hold a valid proxy for the Entegris special meeting.

If you are a stockholder of record of Entegris at the close of business on April 2, 2019 and wish to attend the Entegris special meeting, please so indicate on the appropriate WHITE proxy card or as prompted by the Internet or telephone voting system. Your name will be verified against the list of stockholders of record prior to your being admitted to the Entegris special meeting.

If a broker, bank or other nominee is the record owner of your shares of Entegris common stock, you will need to have proof that you are the beneficial owner as of the Entegris record date to be admitted to the Entegris special meeting. A recent statement or letter from your broker, bank or other nominee confirming your ownership as of the Entegris record date, or presentation of a valid proxy from a broker, bank or other nominee that is the record owner of your shares, would be acceptable proof of your beneficial ownership.

You should be prepared to present photo identification for admittance. If you do not provide photo identification or comply with the other procedures outlined above upon request, you might not be admitted to the Entegris special meeting.

Householding

SEC rules permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements and notices with respect to two or more stockholders sharing the same address by delivering a single proxy statement or a single notice addressed to those stockholders. This process, which is commonly referred to as householding, provides cost savings for companies. Some brokers household proxy materials, delivering a single proxy statement or notice to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be householding materials to your address, householding will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in householding and would prefer to receive a separate proxy statement or notice, or if your household is receiving multiple copies of these documents and you wish to request that future deliveries be limited to a single copy, please notify your broker. You can request prompt delivery of a copy of this joint proxy statement/prospectus by writing to: Corporate Secretary, Entegris, Inc., 129 Concord Road, Billerica Massachusetts 01821 or by calling (978) 436-6500.

Tabulation of Votes

The Entegris board of directors will appoint an independent inspector of election for the Entegris special meeting. The inspector of election will, among other matters, determine the number of shares of Entegris common stock represented at the Entegris special meeting to confirm the existence of a quorum, determine the validity of all proxies and ballots and certify the results of voting on all proposals submitted to Entegris stockholders.

Adjournments

If a quorum is present at the Entegris special meeting but there are not sufficient votes at the time of the Entegris special meeting to approve the Entegris merger agreement proposal and the Entegris charter proposal, then Entegris stockholders may be asked to vote on the Entegris adjournment proposal.

At any subsequent reconvening of the Entegris special meeting at which a quorum is present, any business may be transacted that might have been transacted at the original meeting and all proxies will be voted in the same manner as

they would have been voted at the original convening of the Entegris special meeting, except for any proxies that have been effectively revoked or withdrawn prior to the time the proxy is voted at the reconvened meeting.

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Assistance

If you need assistance voting or in completing your WHITE proxy card or have questions regarding the Entegris special meeting, please contact MacKenzie, the proxy solicitation agent for Entegris:

MacKenzie Partners, Inc.

1407 Broadway

New York, New York 10018

Stockholders, banks and brokers call: (800) 322-2885

ENTEGRIS STOCKHOLDERS SHOULD CAREFULLY READ THIS JOINT PROXY

STATEMENT/PROSPECTUS IN ITS ENTIRETY FOR MORE DETAILED INFORMATION CONCERNING THE MERGER AGREEMENT AND THE MERGER. IN PARTICULAR, ENTEGRIS STOCKHOLDERS ARE DIRECTED TO THE MERGER AGREEMENT, WHICH IS ATTACHED AS ANNEX A HERETO.

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ENTEGRIS PROPOSAL 1: ADOPTION OF THE MERGER AGREEMENT

This joint proxy statement/prospectus is being furnished to you as a stockholder of Entegris as part of the solicitation of proxies by the Entegris board of directors for use at the Entegris special meeting to consider and vote upon a proposal to adopt the merger agreement and approve the transactions contemplated thereby, including the merger and the issuance of shares of Entegris common stock in the merger pursuant to the merger agreement, which is attached as Annex A to this joint proxy statement/prospectus.

The Entegris board of directors, after due and careful discussion and consideration, unanimously approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement and determined that the merger agreement, the merger and the other transactions contemplated by the merger agreement are fair to and in the best interests of Entegris and its stockholders.

The Entegris board of directors accordingly unanimously recommends that Entegris stockholders adopt the merger agreement, as disclosed in this joint proxy statement/prospectus and particularly the related narrative disclosures in the sections of this joint proxy statement/prospectus entitled **The Merger** beginning on page 80 and **The Merger Agreement** beginning on page 127 and as attached as Annex A to this joint proxy statement/prospectus.

The merger between Entegris and Versum cannot be completed without the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote thereon. A failure to vote, a broker non-vote or an abstention will have the same effect as a vote **AGAINST** the proposal to adopt the merger agreement.

**IF YOU ARE AN ENTEGRIS STOCKHOLDER, THE ENTEGRIS BOARD OF DIRECTORS
UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE ENTEGRIS MERGER AGREEMENT
PROPOSAL (ENTEGRIS PROPOSAL 1)**

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ENTEGRIS PROPOSAL 2: ADOPTION OF THE AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ENTEGRIS

The Entegris board of directors has approved and declared advisable, pursuant to the merger agreement, the adoption of the amended and restated certificate of incorporation. The amended and restated certificate of incorporation is attached as Annex B to this joint proxy statement/prospectus. Entegris stockholders should read the amended and restated certificate of incorporation in its entirety.

The key amendments included in the amended and restated certificate of incorporation are as follows:

with respect to the board of directors:

from the closing until the third anniversary of the closing, unless at least 75% of the then-serving directors adopt a resolution to the contrary, the removal of, or the failure to designate, appoint or elect, the chairman of the Versum board of directors as of immediately prior to the effective time to serve as the chairman of the board of directors of the combined company, or the failure to nominate the chairman of the Versum board of directors as of immediately prior to the effective time for election to the board of directors of the combined company at any meeting of the stockholders of the combined company will require the affirmative vote of at least 75% of the then-serving directors;

with respect to certain executive officers:

from the closing and until the third anniversary of the closing, unless at least 75% of the then-serving directors adopt a resolution to the contrary, the removal of, or the failure to appoint, the Entegris CEO (unless he resigns earlier or otherwise permanently ceases his service to the combined company) as the chief executive officer of the combined company will require the affirmative vote of at least 75% of the then-serving directors;

from the closing until the third anniversary of the closing, certain provisions of the amended and restated certificate of incorporation, including the provisions regarding the chairman of the board of directors and the CEO, may not be modified, amended or repealed without the approval of at least 75% of the then-serving directors; and

the terms of certain existing provisions of the certificate of incorporation regarding the powers of the board of directors, Entegris' ability to amend its certificate of incorporation, and the composition of the board of directors will each be qualified by the conditions listed above.

In addition to the key provisions discussed above, in an attempt to streamline the combined company charter, the Entegris certificate of incorporation will be restated.

The approval of Entegris stockholders to amend and restate the certificate of incorporation is not required in order to complete the merger. If this proposal to adopt the amended and restated certificate of incorporation is approved but the

Entegris merger agreement proposal is not approved, the Entegris board of directors will abandon the amended and restated certificate of incorporation without further action by Entegris stockholders.

The Entegris board of directors unanimously recommends that Entegris stockholders adopt the amended and restated certificate of incorporation described herein and set forth in full as Annex B.

Approval of the Entegris charter proposal requires the affirmative vote of a majority of the outstanding shares of Entegris common stock entitled to vote on the proposal. A failure to vote, a broker non-vote or an abstention will have the same effect as a vote **AGAINST** the Entegris charter proposal.

IF YOU ARE AN ENTEGRIS STOCKHOLDER, THE ENTEGRIS BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE ENTEGRIS CHARTER PROPOSAL (ENTEGRIS PROPOSAL 2)

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**ENTEGRIS PROPOSAL 3: ADVISORY (NON-BINDING) VOTE ON MERGER-RELATED
COMPENSATION FOR NAMED EXECUTIVE OFFICERS**

Pursuant to Section 14A of the Exchange Act and Rule 14a-21(c) thereunder, Entegris is seeking a non-binding, advisory stockholder approval of the compensation of Entegris named executive officers that is based on or otherwise relates to the merger as disclosed in the section entitled **Interests of Entegris Directors and Executive Officers in the Merger Quantification of Payments and Benefits to Entegris Named Executive Officers** beginning on page 173. The proposal gives Entegris stockholders the opportunity to express their views on the merger-related compensation of Entegris named executive officers.

Accordingly, Entegris is asking Entegris stockholders to vote **FOR** the adoption of the following resolution, on a non-binding, advisory basis:

RESOLVED, that the compensation that will or may be paid or become payable to Entegris named executive officers, in connection with the merger, and the agreements or understandings pursuant to which such compensation will or may be paid or become payable, in each case as disclosed pursuant to Item 402(t) of Regulation S-K in **Interests of Entegris Directors and Executive Officers in the Merger Quantification of Payments and Benefits to Entegris Named Executive Officers** are hereby APPROVED.

The vote on the advisory compensation proposal is a vote separate and apart from the vote on the proposals to adopt the merger agreement and the amended and restated certificate of incorporation. Accordingly, if you are an Entegris stockholder, you may vote to adopt the Entegris merger agreement proposal and/or the Entegris charter proposal, and vote not to approve the Entegris compensation proposal, and vice versa. If the merger is completed, the merger-related compensation may be paid to Entegris named executive officers to the extent payable in accordance with the terms of the compensation agreements and arrangements even if Entegris stockholders fail to approve the advisory vote regarding merger-related compensation.

Assuming a quorum is present at the Entegris special meeting, approval of the Entegris compensation proposal requires the affirmative vote of a majority of votes properly cast on the proposal at the Entegris special meeting. An abstention, a broker non-vote or other failure to vote (including a failure to instruct your bank, broker or other nominee to vote) will have no effect on the Entegris compensation proposal, assuming a quorum is present.

The Entegris board of directors unanimously recommends a vote FOR the advisory compensation proposal.

**IF YOU ARE AN ENTEGRIS STOCKHOLDER, THE ENTEGRIS BOARD OF DIRECTORS
UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE ENTEGRIS COMPENSATION
PROPOSAL (ENTEGRIS PROPOSAL 3)**

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ENTEGRIS PROPOSAL 4: ADJOURNMENT OF THE ENTEGRIS SPECIAL MEETING

The Entegris special meeting may be adjourned to another time and place if necessary to permit solicitation of additional proxies if there are not sufficient votes to approve the Entegris merger agreement proposal and the Entegris charter proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Entegris stockholders.

Entegris is asking its stockholders to authorize the holder of any proxy solicited by the Entegris board of directors to vote in favor of any adjournment to the Entegris special meeting to solicit additional proxies if there are not sufficient votes to approve the Entegris merger agreement proposal and the Entegris charter proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Entegris stockholders.

The Entegris board of directors unanimously recommends that Entegris stockholders approve the proposal to adjourn the Entegris special meeting, if necessary.

Whether or not there is a quorum, approval of the Entegris adjournment proposal requires the approval of the holders of a majority of the voting shares represented at the Entegris special meeting. A stockholder's abstention from voting will have the same effect as a vote **AGAINST** the Entegris adjournment proposal, while a broker non-vote or other failure to vote (including a failure to instruct your bank, broker or other nominee to vote) will have no effect on the outcome of the Entegris adjournment proposal.

IF YOU ARE AN ENTEGRIS STOCKHOLDER, THE ENTEGRIS BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE ENTEGRIS ADJOURNMENT PROPOSAL (ENTEGRIS PROPOSAL 4)

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THE VERSUM SPECIAL MEETING

This joint proxy statement/prospectus is first being mailed on or about March 22, 2019 and constitutes notice of the Versum special meeting in conformity with the requirements of the DGCL and the amended and restated bylaws of Versum, which are referred to as the Versum bylaws.

This joint proxy statement/prospectus is being provided to Versum stockholders as part of a solicitation of proxies by the Versum board of directors for use at the Versum special meeting and at any adjournments or postponements of the Versum special meeting. Versum stockholders are encouraged to read the entire document carefully, including the annexes to and documents incorporated by reference into this document, for more detailed information regarding the merger agreement and the transactions contemplated by the merger agreement.

Date, Time and Place of the Versum Special Meeting

The Versum special meeting is scheduled to be held at 8555 South River Parkway, Tempe, Arizona 85284, on April 26, 2019, beginning at 9:00 a.m., Mountain Standard Time, unless postponed to a later date.

Matters to Be Considered at the Versum Special Meeting

The purposes of the Versum special meeting are as follows, each as further described in this joint proxy statement/prospectus:

Versum Proposal 1: Adoption of the Merger Agreement. To consider and vote on the Versum merger agreement proposal;

Versum Proposal 2: Approval, on an Advisory (Non-Binding) Basis of Certain Compensatory Arrangements with Versum's Named Executive Officers. To consider and vote on the Versum compensation proposal; and

Versum Proposal 3: Adjournments of the Versum Special Meeting. To consider and vote on the Versum adjournment proposal.

Recommendation of the Versum Board of Directors

The Versum board of directors unanimously recommends that Versum stockholders vote:

Versum Proposal 1: FOR the Versum merger agreement proposal;

Versum Proposal 2: FOR the Versum compensation proposal; and

Versum Proposal 3: FOR the Versum adjournment proposal.

After careful consideration, the Versum board of directors unanimously (1) determined that the merger agreement, the merger and the other transactions contemplated by the merger agreement are fair to, and in the best interests of, Versum and its stockholders; (2) approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement; (3) directed that the merger agreement be submitted for adoption at a meeting of Versum stockholders; and (4) resolved to recommend that Versum stockholders vote in favor of the adoption of the merger agreement.

See also the section entitled **The Merger Recommendation of the Versum Board of Directors; Versum's Reasons for the Merger** beginning on page 91.

Record Date for the Versum Special Meeting and Voting Rights

The record date to determine who is entitled to receive notice of and to vote at the Versum special meeting or any adjournments or postponements thereof is April 2, 2019. As of the close of business on March 11, 2019,

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the latest practicable date prior to the date of this joint proxy statement/prospectus, there were 109,143,954 shares of Versum common stock issued and outstanding and entitled to vote at the Versum special meeting. Each Versum stockholder is entitled to one vote for any matter properly brought before the Versum special meeting for each share of Versum common stock such holder owned at the close of business on the Versum record date. Only Versum stockholders of record at the close of business on the Versum record date are entitled to receive notice of and to vote at the Versum special meeting and any and all adjournments or postponements thereof.

Quorum; Abstentions and Broker Non-Votes

A quorum of stockholders is necessary to conduct the Versum special meeting. The presence, in person or by proxy, of the holders of a majority of the shares of Versum common stock entitled to vote at the Versum special meeting is necessary to constitute a quorum. Shares of Versum common stock represented at the Versum special meeting and entitled to vote, but not voted, including shares for which a stockholder directs an abstention from voting and broker non-votes, will be counted for purposes of determining a quorum. If a quorum is not present, the Versum special meeting will be postponed until the holders of the number of shares of Versum common stock required to constitute a quorum attend.

Under the NYSE rules, banks, brokers or other nominees who hold shares in street name for a beneficial owner of those shares typically have the authority to vote in their discretion on routine proposals when they have not received instructions from beneficial owners. However, banks, brokers or other nominees are not allowed to exercise their voting discretion with respect to the approval of matters that the NYSE determines to be non-routine. Generally, a broker non-vote occurs on an item when (a) a bank, broker or other nominee has discretionary authority to vote on one or more routine proposals to be voted on at a meeting of stockholders, but is not permitted to vote on other non-routine proposals without instructions from the beneficial owner of the shares and (b) the beneficial owner fails to provide the bank, broker or other nominee with such instructions. Under the NYSE rules, non-routine matters include the Versum merger agreement proposal (Versum Proposal 1), the Versum compensation proposal (Versum Proposal 2) and the Versum adjournment proposal (Versum Proposal 3). Because none of the proposals to be voted on at the Versum special meeting are routine matters for which brokers may have discretionary authority to vote, Versum does not expect any broker non-votes at the Versum special meeting. As a result, if you hold your shares of Versum common stock in street name, your shares will not be represented and will not be voted on any matter unless you affirmatively instruct your bank, broker or other nominee how to vote your shares in one of the ways indicated by your bank, broker or other nominee. It is therefore critical that you cast your vote by instructing your bank, broker or other nominee on how to vote. **The NYSE rules governing brokers discretionary authority will not permit brokers to exercise discretionary authority regarding any of the proposals to be voted on at the Versum special meeting.**

Required Votes; Vote of Versum's Directors and Executive Officers

Except for the Versum adjournment proposal, the vote required to approve all of the proposals listed herein assumes the presence of a quorum.

Proposal	Votes Necessary
Versum Proposal 1 Versum merger agreement proposal	Approval requires the affirmative vote of a majority of the outstanding shares of Versum common stock entitled to vote on the Versum merger agreement proposal.

A failure to vote, a broker non-vote or an abstention will have the same effect as a vote **AGAINST** the Versum merger agreement proposal.

Table of Contents**Proposal****Votes Necessary**

Versum Proposal 2	Versum compensation proposal	Approval requires the affirmative vote of a majority of the votes cast at the Versum special meeting on the Versum compensation proposal (meaning the number of votes cast FOR this proposal must exceed the votes cast AGAINST).
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A failure to vote, a broker non-vote or an abstention will have no effect on the outcome of the Versum compensation proposal.

Versum Proposal 3	Versum adjournment proposal	Approval requires the affirmative vote of a majority of the votes entitled to be cast who are present in person or represented by proxy at the Versum special meeting on the Versum adjournment proposal.
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An abstention will have the same effect as a vote **AGAINST** the Versum adjournment proposal, while a broker non-vote or other failure to vote will have no effect on the outcome of the Versum adjournment proposal.

As of March 11, 2019, the latest practicable date prior to the date of this joint proxy statement/prospectus, Versum directors and executive officers, and their affiliates, as a group, owned and were entitled to vote 679,695 shares of Versum common stock, or approximately 0.62% of the total outstanding shares of Versum common stock. Although none of them has entered into any agreement obligating them to do so, Versum currently expects that all of its directors and executive officers will vote their shares **FOR** the Versum merger agreement proposal, **FOR** the Versum compensation proposal and **FOR** the Versum adjournment proposal. See also the section entitled **Interests of Versum's Directors And Executive Officers In The Merger** beginning on page 176 and the arrangements described in Part III of Versum's Annual Report on Form 10-K for the year ended September 30, 2018 and Versum's Definitive Proxy Statement on Schedule 14A for Versum's annual meeting filed with the SEC on December 20, 2018, both of which are incorporated into this joint proxy statement/prospectus by reference.

Methods of Voting

If you are a stockholder of record, you may vote by proxy through the Internet, by telephone or by mail, or by voting in person at the Versum special meeting. For shares held through a bank, broker or other nominee in street name instead of as a registered holder, you may vote by submitting your voting instructions to your bank, broker or other nominee. In most instances, you will be able to do this over the Internet, by telephone or by mail as indicated below. Please refer to the information from your bank, broker or other nominee on how to submit voting instructions. If you do not provide voting instructions to your bank, broker or other nominee, your shares of Versum common stock will not be voted on any proposal as your bank, broker or other nominee does not have discretionary authority to vote on any of the proposals to be voted on at the Versum special meeting; see the section entitled **The Versum Special Meeting Quorum; Abstentions and Broker Non-Votes** beginning on page 71.

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By Internet: If you are a stockholder of record, you can vote by accessing the website indicated on your WHITE proxy card or voting instruction form and following the instructions, 24 hours a day, seven days a week. You will need the control number included on your WHITE proxy card or voting instruction form.

By Telephone: If you are a stockholder of record, you can vote using a touch-tone telephone by calling the number indicated on your WHITE proxy card or voting instruction form and following the recorded instructions, 24 hours a day, seven days a week. You will need the control number included on your WHITE proxy card or voting instruction form.

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By Mail: You may complete, sign, date and return by mail the WHITE proxy card or voting instruction form in the postage-paid envelope provided.

In Person: All stockholders of record may vote in person at the Versum special meeting. If you hold your shares through a bank, broker or other nominee in street name (instead of as a registered holder), you must obtain a legal proxy from your bank, broker or other nominee and bring the legal proxy to the meeting in order to vote in person at the Versum special meeting. For more information on how to attend in person, see the section entitled **The Versum Special Meeting Attending the Versum Special Meeting** beginning on page 74.

Unless revoked, all proxies representing shares entitled to vote that are delivered pursuant to this solicitation will be voted at the Versum special meeting and, where a choice has been specified on the WHITE proxy card, will be voted in accordance with such specification. To reduce administrative costs and help the environment by conserving natural resources, Versum asks that you vote through the Internet or by telephone, both of which are available 24 hours a day.

Notwithstanding the above, if you hold your shares in street name and you submit voting instructions to your bank, broker or other nominee, your instructions must be received by the bank, broker or other nominee prior to the deadline set forth in the information from your bank, broker or other nominee on how to submit voting instructions.

If you deliver a proxy pursuant to this joint proxy statement/prospectus, but do not specify a choice with respect to any proposal set forth in this joint proxy statement/prospectus, your underlying shares of Versum common stock will be voted on such uninstructed proposal in accordance with the recommendation of the Versum board of directors. Versum does not expect that any matter other than the proposals listed above will be brought before the Versum special meeting and the Versum bylaws provide that the only business that may be conducted at the Versum special meeting are those proposals brought before the meeting pursuant to this joint proxy statement/prospectus.

Revocability of Proxies

Any stockholder giving a proxy has the right to revoke it, including any green proxy card you may have previously submitted, before the proxy is voted at the Versum special meeting by any of the following actions:

by sending a signed written notice of revocation to Versum's corporate secretary, provided such statement is received prior to the Versum special meeting;

by voting again by Internet or telephone at a later time before the closing of the polls;

by submitting a properly signed proxy card, including a WHITE proxy card, with a later date; or

by attending the Versum special meeting, revoking your proxy and voting in person.

Only your last submitted proxy card will be considered. You do not need to contact Versum to revoke any previously granted proxy you may have given by submitting a green proxy card, your submission of your vote via the instructions on your WHITE proxy card is sufficient to revoke your green proxy card.

Execution or revocation of a proxy will not in any way affect the stockholder's right to attend the Versum special meeting and vote in person.

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Written notices of revocation and other communications with respect to the revocation of proxies should be addressed to:

Versum Materials, Inc.
Attn: Corporate Secretary
8555 South River Parkway
Tempe, Arizona 85284

If your shares are held in street name and you previously provided voting instructions to your broker, bank or other nominee, you should follow the instructions provided by your broker, bank or other nominee to revoke or change your voting instructions.

We urge you to discard any green proxy cards and disregard any related solicitation materials, which may have been sent to you by Merck, who is soliciting proxies from Versum stockholders in opposition to the merger. If you previously submitted a green proxy card, we urge you to cast your vote as instructed on your WHITE proxy card, which will revoke any earlier dated proxy card that you may have submitted, including any green proxy card. Only the latest dated proxy you submit will be counted.

Proxy Solicitation Costs

Versum is soliciting proxies to provide an opportunity to all Versum stockholders to vote on agenda items, whether or not the stockholders are able to attend the Versum special meeting or an adjournment or postponement thereof. Versum will bear the entire cost of soliciting proxies from its stockholders, except that Versum and Entegris have agreed to each pay one half of the costs and expenses of filing, printing and mailing this joint proxy statement/prospectus and all filing and other similar fees payable to the SEC in connection with this joint proxy statement/prospectus. In addition to the solicitation of proxies by mail, Versum will request that banks, brokers and other nominee record holders send proxies and proxy material to the beneficial owners of Versum common stock and secure their voting instructions, if necessary. Versum may be required to reimburse those banks, brokers and other nominees on request for their reasonable expenses in taking those actions.

Versum has also retained Innisfree to assist in soliciting proxies and in communicating with Versum stockholders and estimates that it will pay them a fee of approximately \$750,000 plus reimbursement for certain out-of-pocket fees and expenses. Versum also has agreed to indemnify Innisfree against various liabilities and expenses that relate to or arise out of its solicitation of proxies (subject to certain exceptions). Proxies may be solicited on behalf of Versum or by Versum directors, officers and other employees in person, by mail, by telephone, by facsimile, by messenger, via the Internet or by other means of communication, including electronic communication. Directors, officers and employees of Versum will not be paid any additional amounts for their services or solicitation in this regard.

Attending the Versum Special Meeting

If you wish to attend the Versum special meeting, you must be a stockholder of record of Versum at the close of business on April 2, 2019 (the record date for the Versum special meeting), hold your shares of Versum beneficially in the name of a broker, bank or other nominee as of the Versum record date or hold a valid proxy for the Versum special meeting. If you hold your shares through a broker, bank or other nominee in street name (instead of as a registered holder) and you wish to vote in person at the Versum special meeting, you must obtain a legal proxy from your bank,

broker or other nominee and bring the legal proxy to the meeting in order to vote in person at the Versum special meeting.

You will need to bring identification along with either your notice of special meeting or proof of stock ownership to enter the Versum special meeting. If your Versum shares are beneficially held in the name of a broker, bank or other nominee and you wish to be admitted to attend the Versum special meeting, you must

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present proof of your ownership of Versum shares, such as a bank or brokerage statement. The use of video, still photography or audio recording at the Versum special meeting is not permitted. For the safety of attendees, all bags, packages and briefcases are subject to inspection. If you do not provide photo identification or comply with the other procedures outlined above, you might not be admitted to the Versum special meeting.

If you plan to attend the Versum special meeting and vote in person, Versum still encourages you to vote in advance by the Internet, telephone or (if you received a paper copy of the proxy materials) by mail so that your vote will be counted even if you later decide not to attend the Versum special meeting. Voting your proxy by the Internet, telephone or mail will not limit your right to vote at the Versum special meeting if you later decide to attend in person.

Householding

SEC rules permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements and notices with respect to two or more stockholders sharing the same address by delivering a single proxy statement or a single notice addressed to those stockholders. This process, which is commonly referred to as householding, provides cost savings for companies. Some brokers household proxy materials, delivering a single proxy statement or notice to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be householding materials to your address, householding will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in householding and would prefer to receive a separate proxy statement or notice, or if your household is receiving multiple copies of these documents and you wish to request that future deliveries be limited to a single copy, please notify your broker. You can request prompt delivery of a copy of this joint proxy statement/prospectus by writing to: Corporate Secretary, Versum Materials, Inc., 8555 South River Parkway, Tempe, Arizona 85284 or by calling (602) 282-1000.

Tabulation of Votes

The Versum board of directors will appoint an independent inspector of election for the Versum special meeting. The inspector of election will, among other matters, determine the number of shares of Versum common stock represented at the Versum special meeting to confirm the existence of a quorum, determine the validity of all proxies and ballots and certify the results of voting on all proposals submitted to Versum stockholders.

Adjournments

If a quorum is present at the Versum special meeting but there are not sufficient votes at the time of the Versum special meeting to approve the Versum merger agreement proposal, then Versum stockholders may be asked to vote on the Versum adjournment proposal.

At any subsequent reconvening of the Versum special meeting at which a quorum is present, any business may be transacted that might have been transacted at the original meeting and all proxies will be voted in the same manner as they would have been voted at the original convening of the Versum special meeting, except for any proxies that have been effectively revoked or withdrawn prior to the time the proxy is voted at the reconvened meeting.

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Assistance

If you need assistance voting or in completing your proxy card or have questions regarding the Versum special meeting, please contact Innisfree, the proxy solicitation agent for Versum:

Innisfree M&A Incorporated

501 Madison Avenue, 20th Floor

New York, New York 10022

Stockholders may call toll free: (877) 456-3463

Banks and brokers may call collect: (212) 750-5833

VERSUM STOCKHOLDERS SHOULD CAREFULLY READ THIS JOINT PROXY STATEMENT/PROSPECTUS IN ITS ENTIRETY FOR MORE DETAILED INFORMATION CONCERNING THE MERGER AGREEMENT AND THE MERGER. IN PARTICULAR, VERSUM STOCKHOLDERS ARE DIRECTED TO THE MERGER AGREEMENT, WHICH IS ATTACHED AS ANNEX A HERETO.

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VERSUM PROPOSAL 1: ADOPTION OF THE MERGER AGREEMENT

This joint proxy statement/prospectus is being furnished to you as a stockholder of Versum as part of the solicitation of proxies by the Versum board of directors for use at the Versum special meeting to consider and vote upon a proposal to adopt the merger agreement and approve the transactions contemplated thereby, including the merger, which is attached as Annex A to this joint proxy statement/prospectus.

The Versum board of directors, after due and careful discussion and consideration, unanimously approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement and determined that the merger agreement, the merger and the other transactions contemplated by the merger agreement are fair to and in the best interests of Versum and its stockholders.

The Versum board of directors accordingly unanimously recommends that Versum stockholders adopt the merger agreement, as disclosed in this joint proxy statement/prospectus and particularly the related narrative disclosures in the sections of this joint proxy statement/prospectus entitled **The Merger** beginning on page 80 and **The Merger Agreement** beginning on page 127 and as attached as Annex A to this joint proxy statement/prospectus.

The merger between Versum and Entegris cannot be completed without the affirmative vote of a majority of the outstanding shares of Versum common stock entitled to vote thereon. A failure to vote, a broker non-vote or an abstention will have the same effect as a vote **AGAINST** the proposal to adopt the merger agreement.

**IF YOU ARE A VERSUM STOCKHOLDER, THE VERSUM BOARD OF DIRECTORS UNANIMOUSLY
RECOMMENDS THAT YOU VOTE FOR THE VERSUM MERGER AGREEMENT PROPOSAL
(VERSUM PROPOSAL 1)**

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**VERSUM PROPOSAL 2: ADVISORY (NON-BINDING) VOTE ON MERGER-RELATED
COMPENSATION FOR NAMED EXECUTIVE OFFICERS**

Pursuant to Section 14A of the Exchange Act and Rule 14a-21(c) thereunder, Versum is seeking a non-binding, advisory stockholder approval of the compensation of Versum's named executive officers that is based on or otherwise relates to the merger as disclosed in the section entitled **Interests of Versum's Directors and Executive Officers in the Merger Quantification of Payments and Benefits to Versum's Named Executive Officers Golden Parachute Compensation** beginning on page 179. The Versum compensation proposal gives Versum stockholders the opportunity to express their views on the merger-related compensation of Versum's named executive officers.

Accordingly, Versum is asking Versum stockholders to vote **FOR** the adoption of the following resolution, on a non-binding, advisory basis:

RESOLVED, that the compensation that will or may be paid or become payable to Versum's named executive officers, in connection with the merger, and the agreements or understandings pursuant to which such compensation will or may be paid or become payable, in each case as disclosed pursuant to Item 402(t) of Regulation S-K in **Interests of Versum's Directors and Executive Officers in the Merger Quantification of Payments and Benefits to Versum's Named Executive Officers Golden Parachute Compensation** are hereby APPROVED.

The vote on the advisory compensation proposal is a vote separate and apart from the vote to adopt the merger agreement. Accordingly, if you are a Versum stockholder, you may vote to approve the Versum merger agreement proposal, and vote not to approve the Versum compensation proposal, and vice versa. If the merger is completed, the merger-related compensation may be paid to Versum's named executive officers to the extent payable in accordance with the terms of the compensation agreements and arrangements even if Versum stockholders fail to approve the advisory vote regarding merger-related compensation.

The affirmative vote of a majority of the votes cast at the Versum special meeting on the Versum compensation proposal is required to approve the Versum compensation proposal (meaning the number of votes cast at the Versum special meeting **FOR** the Versum compensation proposal must exceed votes cast **AGAINST** in order for the Versum compensation proposal to be approved). A failure to vote, a broker non-vote or an abstention will have no effect on the outcome of the Versum compensation proposal.

The Versum board of directors unanimously recommends a vote FOR the advisory compensation proposal.

**IF YOU ARE A VERSUM STOCKHOLDER, THE VERSUM BOARD OF DIRECTORS UNANIMOUSLY
RECOMMENDS THAT YOU VOTE FOR THE VERSUM COMPENSATION PROPOSAL**

(VERSUM PROPOSAL 2)

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VERSUM PROPOSAL 3: ADJOURNMENT OF THE VERSUM SPECIAL MEETING

The Versum special meeting may be adjourned to another time and place if necessary to permit solicitation of additional proxies if there are not sufficient votes to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Versum stockholders.

Versum is asking its stockholders to authorize the holder of any proxy solicited by the Versum board of directors to vote in favor of any adjournment of the Versum special meeting to solicit additional proxies if there are not sufficient votes to approve the Versum merger agreement proposal or to ensure that any supplement or amendment to this joint proxy statement/prospectus is timely provided to Versum stockholders.

The Versum board of directors unanimously recommends that Versum stockholders approve the proposal to adjourn the Versum special meeting, if necessary.

Whether or not a quorum is present, the affirmative vote of a majority of the votes entitled to be cast who are present in person or represented by proxy at the Versum special meeting on the Versum adjournment proposal is required to approve the Versum adjournment proposal. An abstention will have the same effect as a vote **AGAINST** the Versum adjournment proposal, while a broker non-vote or other failure to vote will have no effect on the outcome of the Versum adjournment proposal.

Under the Versum bylaws, the chairman of the Versum special meeting may adjourn the Versum special meeting regardless of the outcome of the Versum adjournment proposal.

IF YOU ARE A VERSUM STOCKHOLDER, THE VERSUM BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE VERSUM ADJOURNMENT PROPOSAL

(VERSUM PROPOSAL 3)

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THE MERGER

*The following is a description of material aspects of the merger. While Entegris and Versum believe that the following description covers the material terms of the merger, the description may not contain all of the information that is important to you. You are encouraged to read carefully this entire joint proxy statement/prospectus, including the text of the merger agreement attached to this joint proxy statement/prospectus as Annex A, for a more complete understanding of the merger. In addition, important business and financial information about each of Entegris and Versum is included in or incorporated by reference into this joint proxy statement/prospectus. See **Where You Can Find More Information** beginning on page 213.*

General

Entegris and Versum have entered into the merger agreement, which provides for the merger of Versum with and into Entegris. As a result of the merger, the separate existence of Versum will cease and Entegris will continue its existence under the laws of the State of Delaware as the surviving corporation. The combined company will be named Entegris, Inc.

Exchange Ratio

At the effective time, each share of Versum common stock (other than Versum excluded shares) will be converted into the right to receive 1.120 shares of Entegris common stock.

No fractional shares of Entegris common stock will be issued upon the conversion of shares of Versum common stock pursuant to the merger agreement. All fractional shares of Entegris common stock that a holder of shares of Versum common stock would be otherwise entitled to receive pursuant to the merger agreement will be aggregated, and such holder will be entitled to receive a cash payment, without interest, in lieu of any such fractional share, equal to the product (rounded to the nearest whole cent) of (a) the amount of such fractional share interest in a share of Entegris common stock to which such holder would be entitled pursuant to the merger agreement and (b) an amount equal to the average of the daily volume weighted average price per share of Entegris common stock on NASDAQ calculated for the ten consecutive trading days ending on the second full trading day immediately prior to (and not including) the closing date.

The exchange ratio is fixed, which means that it will not change between now and the date of the merger, regardless of whether the market price of either Entegris common stock or Versum common stock changes. Therefore, the value of the merger consideration will depend on the market price of Entegris common stock at the effective time. The market price of Entegris common stock has fluctuated since the date of the announcement of the merger agreement and will continue to fluctuate from the date of this joint proxy statement/prospectus to the date of the special meetings, the date the merger is completed and thereafter. The market price of Entegris common stock, when received by Versum stockholders after the merger is completed, could be greater than, less than or the same as the market price of Entegris common stock on the date of this joint proxy statement/prospectus or at the time of the special meeting. Accordingly, you should obtain current market quotations for Entegris common stock and Versum common stock before deciding how to vote with respect to any of the proposals described in this joint proxy statement/prospectus. Entegris common stock is traded on NASDAQ under the symbol **ENTG** and Versum common stock is traded on the NYSE under the symbol **VSM**.

Background of the Merger

The Versum board of directors and Versum senior management regularly review and assess Versum's operations and financial performance, industry conditions and related developments as they may impact Versum's long-term strategic plans and objectives. As part of this ongoing evaluation, following Versum's spin-off from Air Products in 2016, the Versum board of directors, together with Versum's senior management team, has from time to time considered various potential financial and strategic opportunities to enhance

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stockholder value, including the possibility of a combination with Entegris. Versum's senior management and the Versum board of directors were therefore generally familiar with Entegris, its business and its management team, and believed that a potential combination of the two companies on appropriate terms and at the right time could be an opportunity to enhance stockholder value.

In furtherance of Versum's consideration of its strategic direction, Versum has periodically consulted with Lazard over the years, including without any formal engagements, for a number of reasons that include Lazard's experience and expertise as a financial advisor in a wide variety of transactions and its familiarity with Versum's business.

The Entegris board of directors regularly evaluates the strategic direction of Entegris with a view towards strengthening Entegris' business and enhancing stockholder value. As part of that evaluation, Entegris has considered, from time to time, various potential strategic transactions, including potential strategic alliances and other commercial arrangements, strategic mergers, acquisitions and divestitures, and other business combinations, including, prior to and following Versum's spin off from Air Products in 2016, the possibility of a combination with Versum. As a result, the Entegris senior management and the Entegris board of directors were generally familiar with Versum, its management and its businesses, and believed that a combination of the two companies could be a value enhancing opportunity for the stockholders of both companies at the right time and on appropriate terms.

On December 8, 2018, Guillermo Novo, Versum's president and chief executive officer, and Bertrand Loy, Entegris president and chief executive officer, met, at Mr. Novo's invitation, in Tokyo, Japan. During this meeting, Mr. Novo raised the possibility of an all-stock merger of equals between Versum and Entegris. The two executives discussed generally the complementary nature and size of the two companies and some of the potential benefits and challenges that could result from a combination. No specific transaction terms were proposed at this meeting, but the parties discussed that the terms of the transaction and the governance of the combined company should generally be consistent with a merger of equals.

Following the December 8, 2018 meeting, Messrs. Novo and Loy spoke telephonically on two occasions to discuss the logistics of potential subsequent meetings.

On December 18, 2018, the Entegris board of directors met telephonically, together with representatives of Morgan Stanley, Entegris' financial advisor, to discuss the potential transaction with Versum, and the potential benefits and challenges of such a transaction. The Entegris board of directors authorized Mr. Loy to continue to engage with Versum to determine if a transaction could be achieved on acceptable terms.

On December 20, 2018, Mr. Loy contacted Mr. Novo to express Entegris' interest in continuing to discuss a potential merger transaction. Mr. Loy and Mr. Novo discussed the signing of a confidentiality agreement and beginning mutual due diligence and confirmed a meeting including Mr. Novo and Seifi Ghasemi, the chairman of the Versum board of directors, and Mr. Loy and Paul Olson, the chairman of the Entegris board of directors, in New York City on January 4, 2019.

On January 3, 2019, the parties entered into a mutual non-disclosure and standstill agreement allowing for confidential negotiations and due diligence investigations.

On January 4, 2019, Messrs. Novo, Ghasemi, Loy and Olson met in New York City to continue to discuss a potential merger. At the meeting, the parties discussed Versum's and Entegris' respective business philosophies, the parties' mutual desire for an all-stock merger, potential transaction structures and potential governance and management of the combined company that would result from a merger. During this meeting, Messrs. Loy and Olson proposed that Mr. Ghasemi would serve as the chairman of the board of the combined company, that Mr. Loy would serve as the

chief executive officer of the combined company and that Gregory Graves, Entegris chief financial officer, would serve as the chief financial officer of the combined company. Both parties indicated

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a belief that the combined company would benefit from significant potential synergies, increased scale and a strong balance sheet, and a strengthened strategic position. The parties agreed, pending authorization from the Versum board of directors, to commence due diligence with mutual management presentations to take place on January 9, 2019, with a potential second meeting among Messrs. Novo, Ghasemi, Loy and Olson to take place on January 17, 2019 in Scottsdale, Arizona, at which the parties would discuss key proposed terms for the potential transaction, including the proposed exchange ratio.

On January 5, 2019, Messrs. Novo and Loy traveled together to attend a conference in northern California. During this time, Mr. Novo and Mr. Loy discussed their respective management and organizational philosophies and business models, and identified areas in which the combined company could grow and reach new customers and also compared the cultures of the respective companies. No specific transaction terms were discussed during these conversations.

On January 7, 2019, the Versum board of directors met via a telephonic meeting, at which representatives of Versum's senior management, Lazard and Simpson Thacher & Bartlett LLP, Versum's legal counsel, which is referred to as Simpson Thacher, were present. Mr. Novo updated the Versum board of directors on the recent discussions with representatives of Entegris, including the January 4 meeting among Messrs. Novo, Ghasemi, Loy and Olson and the fact that Entegris and Versum had entered into a mutual non-disclosure and standstill agreement in advance of such January 4 meeting. Representatives of Lazard reviewed with the Versum board of directors Lazard's preliminary financial view regarding a potential transaction with Entegris, and the Versum board of directors discussed the possible risks, benefits and potential terms of a potential transaction with representatives of Versum's senior management, Lazard and Simpson Thacher. A representative of Simpson Thacher then reviewed with the Versum board of directors their fiduciary duties under applicable law. The Versum board of directors authorized and instructed Messrs. Ghasemi and Novo to proceed with the proposed subsequent meeting with representatives of Entegris, and instructed Versum's senior management, Lazard and Simpson Thacher to proceed with due diligence.

On January 9, 2019, Mr. Novo, George Bitto, Versum's chief financial officer, and other members of Versum's senior management team met in Menlo Park, California with Messrs. Loy and Graves, and other members of Entegris' senior management team, to discuss Versum's and Entegris' respective businesses, the potential synergies that might be achieved in the proposed combination and related matters. Representatives of each party's financial advisor were in attendance. No specific transaction terms were discussed at this meeting. From January 9 through January 27, 2019, the parties engaged in mutual due diligence investigations of one another.

On January 12, 2019, at a telephonic meeting of the Versum board of directors, at which representatives of Versum's senior management, Lazard and Simpson Thacher were present, Mr. Novo updated the Versum board of directors on further developments with respect to the discussions with Entegris, including that the parties had discussed an exchange of their respective management team's financial projections. The Versum board of directors then discussed potential terms of a potential transaction with Entegris, including preliminary views on trading multiples, the potential exchange ratio and certain social issues. The Versum board of directors subsequently authorized Messrs. Novo and Ghasemi to negotiate the potential exchange ratio with representatives of Entegris based on historical trading multiple averages. Representatives of Versum's senior management then reviewed with the Versum board of directors Versum management's view on Versum's financial projections, including macro forecasts, growth drivers and other assumptions, and including an update on first quarter performance for fiscal year 2019. Following such presentation, a representative of Simpson Thacher reviewed with the Versum board of directors their fiduciary duties under applicable law.

On January 15, 2019, representatives of Lazard and Morgan Stanley spoke telephonically to discuss potential valuation methodologies with respect to a potential transaction between Entegris and Versum, in preparation for a meeting of Messrs. Novo, Ghasemi, Loy and Olson that had been scheduled for January 17, 2019.

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On January 16, 2019, the Entegris board of directors met telephonically, together with members of Entegris' senior management and representatives of Morgan Stanley and Wachtell, Lipton, Rosen & Katz, counsel to Entegris, to receive an update on the status of the proposed transaction and to provide guidance to Messrs. Olson and Loy in advance of their meeting with Messrs. Novo and Ghasemi, Versum's chief executive officer and chairman, respectively, scheduled for January 17, 2019. The directors authorized Mr. Loy to propose to Messrs. Novo and Ghasemi an exchange ratio of 1.097, meaning Versum stockholders would receive 1.097 shares of Entegris common stock for each share of Versum common stock held, which was the average of the exchange ratios implied by comparing the six calendar-month and one calendar-year volume weighted average trading prices of the two companies as of January 16, 2019, and authorized Mr. Loy to negotiate the exchange ratio further should the proposed 1.097 ratio not prove to be acceptable to Versum.

Based on the Entegris board of directors' guidance, Entegris' senior management determined to propose to Versum that the transaction be structured as an all-stock merger that would be intended to be tax-free to the stockholders of both companies, at an exchange ratio of 1.097 Entegris shares for each outstanding Versum share. On January 17, 2019, prior to the meeting of Messrs. Ghasemi, Novo, Loy and Olson, representatives of Morgan Stanley provided representatives of Lazard with a summary of Entegris' proposed key terms, including, as had been previously discussed between the parties, that Mr. Ghasemi serve as chairman of the board of directors of the combined company, that Mr. Loy and Mr. Graves serve as the chief executive officer and chief financial officer of the combined company, respectively, and that the board of directors of the combined company include nine members, with four to be designated by Versum, four to be designated by Entegris, in addition to Mr. Loy as chief executive officer of the combined company.

Later that day, on January 17, 2019, Messrs. Novo, Ghasemi, Loy and Olson met in Scottsdale to discuss the potential transaction and certain key terms. The parties confirmed their continued belief that a merger of the two companies would be beneficial to both Entegris, Versum and their respective stockholders, and reached agreement, subject in both cases to board approval, as to certain terms regarding the governance of the combined company. After negotiation during the meeting, the participants agreed to recommend to their respective boards of directors an exchange ratio of 1.120 shares of Entegris common stock to be exchanged for each share of Versum common stock. The parties determined to proceed expeditiously to negotiate definitive transaction agreements and to complete due diligence, subject to further review and approval by the Entegris board of directors and the Versum board of directors.

On January 18, 2019, a meeting of the Versum board of directors, at which representatives of Versum's senior management, Lazard, Simpson Thacher and Skadden, Arps, Slate, Meagher & Flom LLP, Versum's antitrust counsel, which is referred to as Skadden (telephonically), were present, was held in Scottsdale, Arizona. At this meeting, Mr. Ghasemi provided the Versum board of directors with an update on the ongoing discussions and negotiations regarding the potential transaction with Entegris, including the proposed exchange ratio of 1.120 discussed by the parties on the previous day, and certain governance terms. Mr. Bitto then presented to the Versum board of directors an update on Versum's financial performance in the first quarter of 2019 and discussion ensued. Following discussion, a representative of Simpson Thacher reviewed with the Versum board of directors their fiduciary duties under applicable law. Subsequently, representatives of Lazard reviewed with the Versum board of directors Lazard's preliminary financial analysis of a potential transaction with Entegris. Members of the Versum board of directors then discussed with representatives of Versum senior management, Lazard and Simpson Thacher the due diligence process and the material terms of a merger agreement with Entegris, and representatives of Skadden reviewed with the Versum board of directors Skadden's preliminary analysis of certain regulatory aspects of the proposed transaction.

On January 19, 2019, at the instruction of the Versum board of directors, Simpson Thacher provided an initial draft of a merger agreement to Wachtell Lipton.

From January 19 through January 27, 2019, Entegris, Versum and their respective financial and legal advisors continued to conduct due diligence on each other and the parties negotiated the terms of the merger

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agreement and ancillary documents and confirmed that Mr. Ghasemi would serve as the chairman of the board of the combined company, Mr. Loy would serve as the chief executive officer of the combined company, Mr. Graves would serve as the chief financial officer of the combined company and Michael Valente, the general counsel of Versum, would serve as the general counsel of the combined company.

On January 24, 2019, at a telephonic meeting of the Versum board of directors, at which representatives of Versum's senior management, Lazard and Simpson Thacher were present, Messrs. Novo and Ghasemi updated the Versum board of directors on the status of the discussions with Entegris, the due diligence process, and the negotiations concerning material provisions of the merger agreement. A representative of Simpson Thacher then reviewed with the Versum board of directors their fiduciary duties under applicable law. Subsequently, representatives of Lazard reviewed with the Versum board of directors Lazard's updated financial analysis of a potential transaction with Entegris based upon the proposed exchange ratio. Representatives of Simpson Thacher next discussed the revised merger agreement received from Entegris' counsel, including certain remaining open issues. Mr. Novo then reviewed with the Versum board of directors the proposed communications plan with respect to the announcement of the potential transaction.

On January 25, 2019, the Entegris board of directors met in Boston, together with members of Entegris' senior management and representatives of Morgan Stanley and Wachtell Lipton, to discuss and deliberate on the proposed combination of Entegris and Versum, and to receive presentations from Entegris' senior management and advisors. Mr. Loy and representatives of Morgan Stanley and Wachtell Lipton briefed the directors on the status of negotiations with Versum, and members of Entegris senior management reviewed the results of Entegris' business, synergy potential and due diligence review of Versum. Representatives of Morgan Stanley provided an updated preliminary financial analysis with respect to the potential transaction. A representative of Wachtell Lipton reviewed the directors' fiduciary duties and presented a detailed summary of the terms of the draft merger agreement and proposed financing commitment related to the transaction. After discussion among the directors, including as to the matters described in the section entitled **Recommendation of the Entegris Board of Directors; Entegris' Reasons for the Merger** beginning on page 87, it was the unanimous view of the Entegris board of directors that Entegris should seek to finalize the merger agreement and related documents with Versum, subject to final review and approval by the Entegris board of directors.

Between January 25 and January 27, 2019, Entegris and Versum and their respective legal advisors continued to negotiate the merger agreement and related documents and to finalize due diligence. On January 26 and 27, 2019, Messrs. Loy, Graves, Novo and Ghasemi and certain representatives of the parties' respective financial and communications advisors met in person at the offices of Wachtell Lipton to plan for the public announcement of the transaction, subject to approval of the transaction by the parties' respective boards of directors.

In the afternoon of January 27, 2019, the Entegris board of directors met telephonically, together with members of Entegris' senior management and representatives of Morgan Stanley and Wachtell Lipton. Mr. Loy and a representative of Wachtell Lipton provided an update on developments since the previous meeting of the Entegris board of directors. The representatives of Wachtell Lipton summarized the minimal changes to the draft merger agreement since the January 25 meeting of the Entegris board of directors, and representatives of Morgan Stanley provided directors with its financial analysis with respect to the potential transaction with Versum. Morgan Stanley rendered for the benefit of the Entegris board of directors its oral opinion, subsequently confirmed in writing, on January 27, 2019 that as of such date and based upon and subject to the various assumptions made, procedures followed, matters considered, and qualifications and limitations on the scope of the review undertaken by Morgan Stanley as set forth in the written opinion, the exchange ratio pursuant to the merger agreement was fair from a financial point of view to Entegris. See the section entitled **Opinion of Entegris' Financial Advisor** beginning on page 96 for more information.

After discussions, including as to the matters discussed below in the section entitled **Recommendation of the Entegris Board of Directors; Entegris Reasons for the Merger** beginning on page 87 the Entegris

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board of directors, by unanimous vote of all of its members, (1) determined that the merger agreement and the transactions contemplated thereby, including but not limited to the merger, the share issuance and the adoption of the amended and restated certificate of incorporation on the terms set forth in the merger agreement were fair to, and in the best interests of, Entegris and the holders of shares of Entegris common stock, (2) approved and declared advisable the merger agreement and the transactions contemplated thereby, including the merger, on the terms and subject to the conditions set forth in the merger agreement, (3) directed that the share issuance and the merger agreement be submitted to the holders of shares of Entegris common stock for their approval and adoption, and the amended and restated certificate of incorporation be submitted to the holders of shares of Entegris common stock for their adoption and (4) resolved to recommend that the holders of shares of Entegris common stock vote in favor of the adoption of the merger agreement and the approval of the share issuance and in favor of the adoption of the amended and restated certificate of incorporation.

On January 27, 2019, a meeting of the Versum board of directors, at which representatives of Versum's senior management, Lazard (telephonically) and Simpson Thacher (telephonically) were present, was held in Scottsdale, Arizona. Messrs. Ghasemi and Novo participated telephonically from Lazard's offices in New York. Mr. Ghasemi updated the Versum board of directors on the status of the negotiations with Entegris, including that the parties had substantially finalized the merger agreement and resolved all significant open substantive issues with respect to the terms of the potential transaction. Mr. Ghasemi reported that the Entegris board of directors had met earlier on January 27, 2019 and had unanimously resolved to approve the potential transaction. A representative of Simpson Thacher then reviewed with the Versum board of directors their fiduciary duties under applicable law and the terms of the draft merger agreement. Representatives of Lazard then reviewed with the Versum board of directors Lazard's financial analysis of the potential transaction with Entegris. Following further discussion, representatives of Lazard then delivered to the Versum board of directors Lazard's oral opinion, subsequently confirmed in writing by delivery of Lazard's opinion dated as of the same date, to the effect that, as of such date, and based upon and subject to the assumptions, procedures, factors, qualifications and limitations set forth in Lazard's written opinion, the exchange ratio of 1.120 shares of Entegris common stock per share of Versum common stock was fair, from a financial point of view, to the Versum stockholders (other than the holders of Versum excluded shares), as further described in the section entitled **Opinion of Versum's Financial Advisor** beginning on page 107.

After discussions, including as to the matters discussed below in the section entitled **Recommendation of the Versum Board of Directors; Versum's Reasons for the Merger** beginning on page 91, the Versum board of directors unanimously determined that the merger agreement, the merger and the other transactions contemplated by the merger agreement were fair to, and in the best interests of, Versum and its stockholders, approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement, directed that the merger agreement be submitted for adoption at a meeting of Versum stockholders and resolved to recommend that the Versum stockholders vote in favor of the adoption of the merger agreement.

Following the approval of the merger and the merger agreement by the Entegris board of directors and the Versum board of directors, Entegris and Versum finalized and executed the merger agreement on January 27, 2019, and in the morning of January 28, 2019, prior to the opening of trading, issued a joint press release announcing the execution of the merger agreement.

On February 27, 2019, Dr. Stefan Oschmann, Chief Executive Officer of Merck, placed a call to Mr. Ghasemi to inform him of Merck's interest in acquiring Versum. Mr. Ghasemi responded that he would discuss the call with the members of the Versum board of directors. Within minutes after such call, on February 27, 2019, Merck sent a letter to the Versum board of directors setting forth a non-binding unsolicited proposal to acquire Versum for \$48.00 per share in cash, which is referred to as the Merck proposal.

Later that morning on February 27, 2019, Versum issued a press release that acknowledged receipt of the Merck proposal and stated that Versum continues to believe in the strategic and financial rationale of the proposed merger of equals with Entegris and that the Versum board of directors intends to thoroughly review the Merck proposal consistent with its fiduciary duties.

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On February 27, 2019, the Versum board of directors met telephonically, together with members of Versum's senior management and representatives of Lazard and Simpson Thacher, to discuss next steps in connection with the review of the Merck proposal. Also on February 27, 2019, Entegris issued a press release in response to the Merck proposal, stating that Entegris believes the merger of Versum and Entegris will deliver meaningful value to Versum stockholders and Entegris stockholders.

On February 27, 2019, the Entegris board of directors held an update call, together with members of Entegris's senior management and representatives of Morgan Stanley and Wachtell Lipton, to discuss developments as well as potential public disclosure of additional potential synergies identified during ongoing integration-planning discussions between Entegris and Versum.

On February 28, 2019, the Versum board of directors met via a telephonic meeting, at which representatives of Versum's senior management, Lazard and Simpson Thacher were present. Following discussion of the Merck proposal and, in light of recent unusual trading activity in the stock of Versum, the Versum board of directors resolved to adopt a limited duration shareholder rights plan, which the Versum board of directors had previously reviewed with outside counsel and which was available to be implemented quickly in response to a specific threat to corporate policymaking, such as the decision to pursue the Entegris merger. Later on February 28, 2019, the Versum board of directors authorized and declared a dividend of one preferred share purchase right for each outstanding share of Versum common stock, payable to Versum stockholders of record on March 11, 2019, pursuant to the Versum rights plan (as defined in the section entitled **Comparison of Stockholders' Rights Stockholder Rights Plans** beginning on page 190).

On March 1, 2019, the Versum board of directors met telephonically, together with members of Versum's senior management and representatives of Lazard and Simpson Thacher, to discuss the Merck proposal. Representatives of Lazard reviewed with the Versum board of directors Lazard's financial analysis of the Merck proposal. Members of the Versum board of directors then discussed the terms of the Merck proposal and the merger agreement with Entegris, consulted with representatives of Versum senior management, Lazard and Simpson Thacher, and concluded, after careful review and consideration, that the Merck proposal was not a superior proposal for purposes of the merger agreement with Entegris. Later that day on March 1, 2019, Versum issued a press release announcing the determination by the Versum board of directors, and stating that Versum remains committed to completing the merger with Entegris, which the Versum board of directors believes will create significant long-term value, and is in the best interests of the Versum stockholders.

On March 2, 2019, the Versum board of directors met telephonically with members of Versum's senior management and representatives of Simpson Thacher to discuss the desirability of obtaining advice from an additional financial advisor in connection the Merck proposal. Following discussion, the Versum board of directors instructed Versum's senior management to seek to engage Citigroup Global Markets, which is referred to as Citi, to advise the Versum board of directors with respect to a financial analysis of the Merck proposal. Citi was selected on the basis of its experience in the industries in which Versum operates and its familiarity with Versum.

On March 4, 2019, representatives of Merck and its financial advisor proposed to arrange a telephone call between Dr. Oschmann of Merck and Mr. Ghasemi, which Mr. Ghasemi declined following consultation with members of Versum's senior management and representatives of Simpson Thacher, consistent with the terms of the merger agreement.

On March 5, 2019, Merck issued an open letter to the Versum stockholders, stating that Merck remains fully committed to pursuing the Merck proposal and requesting that the Versum board of directors engage with Merck.

On March 6, 2019, the Versum board of directors met telephonically, together with members of Versum's senior management and representatives of Citi and Simpson Thacher, to discuss the Merck proposal. At the meeting, representatives of Versum's senior management updated the Versum board of directors on the status of

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the integration planning meetings between the management teams of Versum and Entegris and the identification of potential additional synergies resulting from the merger. Representatives of Citi presented to the Versum board of directors Citi's preliminary financial analysis. Following discussion of the Merck proposal and the merger with representatives of Versum's senior management, Citi and Simpson Thacher, the Versum board of directors reaffirmed, after careful review and consideration, its previous determination that the Merck proposal was not a superior proposal for purposes of the merger agreement with Entegris.

On March 8, 2019, Versum and Entegris issued a joint open letter to Versum stockholders and Entegris stockholders, reiterating the value-creation potential and strategic benefits of the merger and announcing additional expected synergies resulting from the merger. See the section entitled **Certain Estimated Synergies** beginning on page 121 for a summary of such additional expected synergies.

Also on March 8, 2019, the Versum board of directors issued a statement reiterating its determination that the Merck proposal was not a superior proposal for purposes of the merger agreement with Entegris, and reaffirming its commitment to completing the merger with Entegris.

On March 11, 2019, Entegris and Versum announced the expiration of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, in connection with the merger, which occurred at 11:59 p.m. EST on March 8, 2019 and satisfied one of the conditions to closing of the merger.

On March 12, 2019, Merck filed a preliminary proxy statement with the SEC with respect to the solicitation of proxies by Merck in opposition to the merger.

On March 14, 2019, Versum announced that it had entered into an amendment to the Versum rights plan to remove references to the defined concept of "Acting in Concert" from the Versum rights plan.

Recommendation of the Entegris Board of Directors; Entegris Reasons for the Merger

At a special meeting held on January 27, 2019, the Entegris board of directors unanimously: (1) determined that the merger agreement and the transactions contemplated thereby, including but not limited to the merger, the share issuance and the adoption of the amended and restated certificate of incorporation of Entegris on the terms set forth in the merger agreement, are fair to, and in the best interests of, Entegris and the holders of shares of Entegris common stock; (2) approved and declared advisable the merger agreement and the transactions contemplated thereby, including the merger, on the terms and subject to the conditions set forth in the merger agreement; (3) directed that the share issuance and the merger agreement be submitted to the holders of shares of Entegris common stock for their approval and adoption, and the amended and restated certificate of incorporation of Entegris be submitted to the holders of shares of Entegris common stock for their adoption; and (4) resolved to recommend that the holders of shares of Entegris common stock vote in favor of the adoption of the merger agreement, including the approval of the share issuance, and the adoption of the amended and restated certificate of incorporation of Entegris. **Accordingly, the Entegris board of directors unanimously recommends that Entegris stockholders vote FOR the Entegris merger agreement proposal, FOR the Entegris charter proposal, FOR the Entegris compensation proposal and FOR the Entegris adjournment proposal.**

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In reaching its determinations and recommendations, the Entegris board of directors consulted with Entegris senior management and its outside legal and financial advisors, and considered a number of factors, including the following factors that weighed in favor of the merger.

Benefits of a Combined Company. The belief of the Entegris board of directors that the combined company would be well positioned to achieve future growth and generate additional returns for Entegris stockholders, including due to:

the Entegris board of directors positive view of the ability of the combined company to achieve scale with a well-balanced and complementary portfolio of products, solutions and services in high-growth areas;

the Entegris board of directors view that the cultures of Entegris and Versum are aligned, including shared values and commitment to integrity, operational excellence, customer satisfaction, safety, innovation and stockholder value;

the expectation that the combined company will have increased financial strength and flexibility, with an estimated \$3 billion in revenue and approximately \$1 billion in adjusted EBITDA (inclusive of annualized synergies) on a pro forma basis for calendar year 2018;

the expectation that the combined company will be well-capitalized with a strong balance sheet and a pro forma net leverage ratio of 1.1x, based on adjusted EBITDA (inclusive of annualized synergies) over the twelve months ending December 31, 2018 and on cash and debt balances as of December 31, 2018, as well as flexibility to invest, make acquisitions, and return capital to stockholders while enjoying greater earnings stability and margin growth potential;

the expectation that the combined company would generate approximately \$75 million of annualized cost synergies by the end of the first year following completion of the merger, including synergies related to selling, general and administrative expenses and supply chain synergies;

the expectation that the combined company will realize revenue growth synergies from cross-selling and product co-optimization, with further potential synergies relating to capital expenditures, such as the optimization of manufacturing and laboratory expansions and improvements to fleet management;

the expectation that, because of the companies highly complementary portfolio of products, solutions and services, the combined company will be able to provide enhanced offerings to customers across the entire semiconductor manufacturing process, be better able to address customers evolving needs for new materials as device architectures become more complex and be able to capitalize on the increasing demand for purity;

the expectation that the combined company will be better able to accelerate the development and time to market of new technologies;

the Entegris board of directors' positive view of the ability of the combined company to expand its local presence in key geographies to better support a global customer base due to the combined company's broader scale; and

the expectation that the combined company's integrated global manufacturing network will be able to improve delivery times, drive operational efficiencies and lower costs.

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Exchange Ratio and Merger Consideration. The Entegris board of directors considered the relative favorability of the exchange ratio relative to the exchange ratios historically implied by the relative trading prices of Entegris and Versum common stock over various periods and relative to the current assessment of the valuation of each company and of the synergies and other benefits of the merger, in addition to:

the fact that, upon completion of the merger, Entegris stockholders will own 52.5% and former Versum stockholders will own 47.5% of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only); and

the oral opinion of Morgan Stanley, subsequently confirmed in writing, rendered to the Entegris board of directors that, as of January 27, 2019, and based upon and subject to the various assumptions made, procedures followed, matters considered, and qualifications and limitations on the scope of the review undertaken by Morgan Stanley as set forth in the written opinion, the exchange ratio pursuant to the merger agreement was fair from a financial point of view to Entegris. Such opinion is more fully described below under the section entitled **Opinion of Entegris Financial Advisor** beginning on page 96, and the full text of the written opinion of Morgan Stanley, which is attached as Annex C to this joint proxy statement/prospectus.

Governance Terms for the Combined Company. The Entegris board of directors considered the structure of the transaction as a merger of equals and also considered the governance terms agreed between the parties and reflected in the merger agreement providing that:

the board of directors of the combined company will include five directors from Entegris, including the Entegris CEO, and four directors from Versum;

Messrs. Loy and Graves, Entegris' current chief executive officer and current chief financial officer, will be, respectively, the chief executive officer and chief financial officer of the combined company following the merger; and

Mr. Ghasemi, the current chairman of the Versum board, will be the chairman of the board of the combined company following the merger. The Entegris board noted that Mr. Ghasemi has a strong reputation as a leader in the industry and in similar other industries.

Other Factors Considered by the Entegris Board of Directors. In addition to considering the factors described above, the Entegris board of directors considered the following additional factors that weighed in favor of the merger:

the past experience the Entegris management team has had in timely and effective corporate integration following significant combinations and acquisitions, including a prior merger of equals ;

historical information concerning Entegris and Versum's respective businesses, financial condition, results of operations, earnings, trading prices, technology positions, managements, competitive positions and prospects on a stand-alone basis and forecasted combined basis; and

the current and prospective business environment in which Entegris and Versum operate, including international, national and local economic conditions and the competitive and regulatory environment, and the likely effect of these factors on Entegris and the combined company.

Terms of the Merger Agreement. The Entegris board of directors considered that the terms of the merger agreement, taken as a whole, including the parties' representations, warranties and covenants, and the circumstances under which the merger agreement may be terminated, in its belief, are reasonable. The Entegris board of directors also reviewed and considered the conditions to the completion of the merger, and concluded that while the completion of the merger is subject to various regulatory approvals, such approvals were likely to be satisfied on a timely basis.

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The Entegris board of directors weighed these advantages and opportunities against a number of potentially negative factors in its deliberations concerning the merger agreement and the merger, including:

the risk that, because the exchange ratio under the merger agreement would not be adjusted for changes in the market price of Entegris common stock or Versum common stock, the then-current trading price of the shares of Entegris common stock to be issued to holders of shares of Versum common stock upon the consummation of the merger could be significantly higher than the trading price prevailing at the time the merger agreement was entered into;

the risk that Versum's financial performance may not meet Entegris' expectations;

the potential challenges and difficulties in integrating the operations of Entegris and Versum and the risk that anticipated cost savings and operational efficiencies between the two companies, or other anticipated cost benefits of the merger, might not be realized or might take longer to realize than expected;

the difficulties and management challenges inherent in completing the merger and integrating the businesses, operations and workforce of Versum with those of Entegris and the possibility of encountering difficulties in achieving expected revenue growth and other non-cost synergies;

the possible diversion of management attention for an extended period of time during the pendency of the merger and, following closing, the integration of the two companies;

the substantial costs to be incurred in connection with the merger, including those incurred regardless of whether the merger is consummated;

the ability of the Versum board of directors, in certain circumstances, to terminate the merger agreement or change its recommendation that Versum stockholders approve the Versum merger agreement proposal;

that Entegris would be required to pay to Versum a termination fee of \$155 million in the event the Entegris board of directors were to terminate the merger agreement in order for Entegris to enter into a superior proposal, should one be made, or if the merger agreement were to be terminated by Versum in connection with a change in the recommendation by the Entegris board of directors to its stockholders with respect to approval of the merger agreement; and

the risks of the type and nature described in the section entitled **Risk Factors** beginning on page 43 and the matters described in the section entitled **Cautionary Statement Regarding Forward-Looking Statements** beginning on page 41.

The Entegris board of directors considered all of these factors as a whole and, on balance, concluded that the potential benefits of the merger outweighed the risks and uncertainties of the merger.

In addition, the Entegris board of directors was aware of and considered the interests of its directors and executive officers that are different from, or in addition to, the interests of Entegris stockholders generally described in the section entitled **Interests of Entegris Directors and Executive Officers in the Merger** beginning on page 170.

The foregoing discussion of the information and factors that the Entegris board of directors considered is not intended to be exhaustive, but rather is meant to include the material factors that the Entegris board of directors considered. The Entegris board of directors collectively reached the conclusion to adopt the merger agreement and approve the amended and restated certificate of incorporation of Entegris, the merger and the other transactions contemplated by the merger agreement in light of the various factors described above and other factors that the members of the Entegris board of directors believed were appropriate. In view of the complexity and wide variety of factors, both positive and negative, that the Entegris board of directors considered in connection with its evaluation of the merger, the Entegris board of directors did not find it practical, and did not

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attempt, to quantify, rank or otherwise assign relative or specific weights or values to any of the factors it considered in reaching its decision and did not undertake to make any specific determination as to whether any particular factor, or any aspect of any particular factor, was favorable or unfavorable to the ultimate determination of the Entegris board of directors. In considering the factors discussed above, individual directors may have given different weights to different factors.

The foregoing description of Entegris' consideration of the factors supporting the merger is forward-looking in nature. This information should be read in light of the factors discussed in the section entitled **Cautionary Statement Regarding Forward-Looking Statements** beginning on page 41.

Recommendation of the Versum Board of Directors; Versum's Reasons for the Merger

At a meeting held on January 27, 2018, the Versum board of directors unanimously:

determined that the merger agreement, the merger and the other transactions contemplated by the merger agreement are fair to, and in the best interests of, Versum and its stockholders;

approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement;

directed the merger agreement be submitted for adoption at a meeting of Versum stockholders; and

recommended that Versum stockholders vote in favor of the adoption of the merger agreement.

ACCORDINGLY, THE VERSUM BOARD OF DIRECTORS HAS APPROVED THE MERGER AGREEMENT AND UNANIMOUSLY RECOMMENDS THAT VERSUM STOCKHOLDERS VOTE FOR THE PROPOSAL TO ADOPT THE MERGER AGREEMENT.

In reaching its decision to approve and declare advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement, the Versum board of directors, as described in the section entitled

Background of the Merger beginning on page 80, held a number of meetings, consulted with Versum's senior management and its outside legal and financial advisors, Simpson Thacher and Lazard, respectively, and considered the business, assets and liabilities, results of operations, financial performance, strategic direction and prospects of Versum and Entegris. At its meeting held on January 27, 2018, after due consideration and consultation with Versum's senior management and outside legal and financial advisors, the Versum board of directors unanimously approved and declared advisable the merger agreement, the merger and the other transactions contemplated by the merger agreement and recommended that Versum stockholders vote in favor of the adoption of the merger agreement.

In making its determination, the Versum board of directors focused on a number of factors, including the following:

the opportunity to combine two complementary businesses with complementary product and technology portfolios which would enhance the scale and scope of the combined company to create a leading materials

and chemicals supplier to the semiconductor and other high-tech industries that will bring customers enhanced technical capabilities;

the cultural alignment between Versum and Entegris, including shared values and commitment to integrity, operational excellence, customer satisfaction, innovation and stockholder value;

that Mr. Ghasemi will be the chairman of the board of directors of the combined company following the merger;

that Mr. Loy will become the chief executive officer of the combined company following the merger, and the Versum board of directors view of Mr. Loy's strong track record as chief executive officer of Entegris;

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the expectation that the combined company will have flexibility to invest, make acquisitions, and return capital to stockholders, while enjoying greater earnings stability and margin growth potential;

the importance of scale in the competitive market environments in which Versum and Entegris operate, and the potential for the merger to enhance the combined company's ability to compete effectively in those environments;

the expectation that the combined company would generate more than \$75 million of annual cost synergies in manufacturing, logistics, procurement and selling, general and administrative expense rationalization within 12 months following the closing of the merger;

the expectation that the combined company will be well-capitalized with a strong balance sheet, a pro forma net leverage ratio of approximately 1.1x Adjusted EBITDA (inclusive of annualized cost synergies) and an estimated \$3 billion in revenue;

the expectation that the combined company will realize revenue growth synergies from cross-selling opportunities, with further potential upside from capex and revenue synergies;

the fact that the exchange ratio, based on the closing price of the Versum common stock and the Entegris common stock as of January 25, 2019, the last trading day prior to the announcement of the merger agreement, represented an implied premium of approximately 10.8% to the closing price of the Versum common stock on January 25, 2019;

the opportunity to combine resources and expertise to better meet the evolving needs of customers of both companies;

the expectation that the combined company would have a diversified product and technology portfolio and an increased number of growth platforms within high-growth end-markets, and would be able to better collaborate with customers and accelerate the development of new technologies;

the Versum board of directors' view of the combined company's ability to expand local presence in certain key geographies to better support a global customer base;

the expectation that the merger would enhance the resilience of the combined company's business model, improving predictability of earnings streams and mitigating potential downside risks;

the structure of the transaction as a merger of equals, including the governance terms in the merger agreement providing that:

the board of directors of the combined company will include four designees from each of Entegris and Versum and the chief executive officer of Entegris immediately prior to the effective time;

Entegris' chief executive officer prior to the effective time of the merger will serve as the chief executive officer of the combined company as of the effective time;

Versum's chairman of the board of directors prior to the effective time of the merger will serve as the chairman of the board of directors of the combined company as of the effective time;

subject to the approval by Entegris stockholders of the Entegris charter proposal, changes to the governance provisions described in the two immediately preceding bullets during the three years after the closing of the merger would require the affirmative vote of at least 75% of the members of the board of directors of the combined company, and the belief of the Versum board of directors that these arrangements would reasonably assure the continuity of the management and oversight of the combined company following completion of the merger and allow a strong management team drawn from both Versum and Entegris to work together to integrate the two companies;

the initial composition of the audit and finance committee, compensation committee and nominating and governance committee will be mutually agreed upon by Versum and Entegris prior to the closing;

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the combined company's name will be Entegris, Inc.; and

as of the effective time, the headquarters of the combined company will be in Billerica, Massachusetts;

that the exchange ratio of 1.120 shares of Entegris common stock for each share of Versum common stock is fixed, consistent with the principles underlying the merger of equals structure for the transaction;

the fact that Versum and Entegris have historically had comparable market capitalization and trading multiples;

that the merger agreement permits Versum to continue to make its regular quarterly cash dividends in each fiscal quarter in an amount per share of up to \$0.08 per quarter;

the historical and projected financial information concerning Versum's business, financial performance and condition, results of operations, earnings, competitive position and prospects as a stand-alone company;

the information and discussions with Versum's senior management and outside advisors regarding Entegris business, assets, financial condition, results of operations, current business strategy and prospects, including the projected long-term financial results of Entegris as a stand-alone company, the size and scale of the combined company and the expected pro forma effect of the proposed merger on the combined company;

the current and prospective business environment in which Versum and Entegris operate, including international, national and local economic conditions, the competitive and regulatory environment, and the likely effect of these factors on Versum and the combined company;

the recommendation of Versum's senior management in favor of the merger;

that the merger and the all-stock consideration offered in connection therewith will provide Versum stockholders with ownership of approximately 47.5% of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) and therefore allow Versum stockholders to participate in the equity value of the combined company, including future growth and the expected cost synergies resulting from the merger;

the ability of Versum stockholders to approve or reject the merger by voting on the adoption of the merger agreement;

the impact of the merger on the customers and employees of Versum;

the Versum board of directors' view, after consultation with Versum's senior management and its legal counsel, concerning the likelihood that regulatory approvals and clearances necessary to consummate the mergers would be obtained, without the imposition of conditions sufficiently material to preclude the merger;

the anticipated customer, supplier and stakeholder reaction to the merger;

the analyses and presentations of Lazard and its oral opinion, subsequently confirmed in writing, to the Versum board of directors that, as of January 27, 2019, and based upon and subject to the assumptions, procedures, factors, qualifications and limitations set forth in its written opinion, the exchange ratio in the merger was fair, from a financial point of view, to Versum stockholders (other than the holders of Versum excluded shares), as more fully described under the section entitled **Opinion of Versum's Financial Advisor** beginning on page 107 and the full text of the written opinion of Lazard, which is attached as Annex D to this joint proxy statement/prospectus;

the expected treatment of the merger as a tax-free reorganization under Section 368(a) of the Code for U.S. federal income tax purposes, as more fully described in the section entitled **Material U.S. Federal Income Tax Consequences** beginning on page 183;

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the review by the Versum board of directors with its advisors of the structure of the proposed merger and the financial and other terms of the merger agreement, including the parties' representations, warranties and covenants, the conditions to their respective obligations and the termination provisions as well as the likelihood of consummation of the proposed transactions and the evaluation of the Versum board of directors of the likely time period necessary to complete the merger. The Versum board of directors also considered the following specific aspects of the merger agreement:

the nature of the closing conditions included in the merger agreement, including the reciprocal exceptions to the events that would constitute a material adverse effect on either Versum or Entegris for purposes of the merger agreement, as well as the likelihood of satisfaction of all conditions to completion of the transactions;

that the representations and warranties of Versum or Entegris, as well as the interim operating covenants requiring the parties to conduct their respective businesses in the ordinary course prior to completion of the merger, subject to specific limitations, are generally reciprocal;

the requirement to use reasonable best efforts to obtain approvals or clearances by applicable competition authorities, including by divesting assets, holding separate assets or otherwise taking any other action that would limit Versum's or Entegris' freedom of action, except to the extent that such action would reasonably be expected to be materially adverse to Versum and its subsidiaries, taken as a whole, Entegris and its subsidiaries, taken as a whole, or the combined company and its subsidiaries, taken as a whole, in each case, from and after the effective time;

the restrictions in the merger agreement on Entegris' ability to respond to and negotiate certain alternative transaction proposals from third parties, and the requirement that Entegris pay Versum a \$155 million termination fee if the merger agreement is terminated under certain circumstances;

Versum's right to engage in negotiations with, and provide information to, a third party that makes an unsolicited written bona fide proposal relating to an alternative proposal, if the Versum board of directors has determined in good faith, after consultation with its outside legal counsel and financial advisors, that such proposal constitutes or could reasonably be expected to result in a transaction that is superior to the merger with Entegris; and

the right of the Versum board of directors to change its recommendation to Versum stockholders to vote **FOR** the Versum merger agreement proposal if a superior proposal is available or an intervening event has occurred, subject to certain conditions.

The Versum board of directors weighed these advantages and opportunities against a number of potentially negative factors in its deliberations concerning the merger agreement and the merger, including:

the risk that Entegris' financial performance may not meet Versum's expectations;

the difficulties and management challenges inherent in completing the merger and integrating the business, operations and workforce of Versum and Entegris and the risk of not capturing all of the anticipated cost synergies and the risk that other anticipated benefits of the merger might not be realized;

the amount of time it could take to complete the merger, including that completion of the merger depends on factors outside of Versum's or Entegris' control, and the risk that the pendency of the merger for an extended period of time following the announcement of the execution of the merger agreement could have an adverse impact on Versum or Entegris, including their respective customer, supplier and other business relationships;

the possible diversion of management attention for an extended period of time during the pendency of the merger;

the risk that, despite the retention efforts of Versum and Entegris prior to the consummation of the merger, the combined company may lose key personnel;

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the risk that changes in the regulatory landscape or new industry developments, including changes in customer preferences, may adversely affect the business benefits anticipated to result from the merger;

the provisions of the merger agreement which prohibit Versum from soliciting or entertaining other acquisition offers and the potential payment to Entegris by Versum of a termination fee of \$140 million, as described in the section entitled **The Merger Agreement Termination Fees** beginning on page 155;

the risk that the \$155 million termination fee to which Versum may be entitled, subject to the terms and conditions of the merger agreement, in the event Entegris terminates the agreement in certain circumstances may not be sufficient to compensate Versum for the harm that it might suffer as a result of such termination;

the potential for litigation relating to the proposed merger and the associated costs, burden and inconvenience involved in defending those proceedings;

that certain provisions of the merger agreement, although reciprocal, may have the effect of discouraging alternative proposals involving Versum;

the restrictions in the merger agreement on the conduct of Versum's business during the period between execution of the merger agreement and the consummation of the merger, including that Versum must conduct its business only in the ordinary course, subject to specific limitations, which (although reciprocal) could negatively impact Versum's ability to pursue certain business opportunities or strategic transactions;

the risk that Versum stockholders or Entegris stockholders, as applicable, may not approve the proposals at the Versum special meeting or Entegris special meeting;

the risk that Entegris stockholders may not approve the Entegris charter proposal, which is not a condition to the closing of the merger, and that the merger may be consummated without the amended and restated certificate of incorporation of Entegris becoming effective;

the risk that regulatory agencies may delay, object to and challenge the merger or may impose terms and conditions in order to resolve those objections that adversely affect the financial results of Versum, Entegris or the combined company; see the section entitled **Regulatory Approvals** beginning on page 122;

the fact that the exchange ratio is fixed under the merger agreement, meaning that the trading value of the merger consideration, consisting of 1.120 shares of Entegris common stock for each share of Versum common stock, upon consummation of the merger might be more or less than the trading value of such consideration on the date of the execution of the merger agreement;

the substantial transaction costs to be incurred in connection with the proposed merger; and

the risks of the type and nature described in the section entitled **Risk Factors** beginning on page 43 and the matters described in the section entitled **Cautionary Statement Regarding Forward-Looking Statements** beginning on page 41.

The Versum board of directors considered all of these factors as a whole and, on balance, concluded that it supported a favorable determination to approve the merger agreement and to make its recommendations to Versum stockholders.

In addition, the Versum board of directors was aware of and considered the interests of its directors and executive officers that are different from, or in addition to, the interests of Versum stockholders generally, including the treatment of equity awards held by such directors and executive officers in the merger described in the section entitled **Interests of Versum s Directors and Executive Officers in the Merger** beginning on page 176 and the obligation of the combined company to indemnify Versum directors and officers against certain claims and liabilities.

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The foregoing discussion of the information and factors that the Versum board of directors considered is not intended to be exhaustive, but rather is meant to include the material factors that the Versum board of directors considered. The Versum board of directors collectively reached the conclusion to approve the merger agreement, the merger and the other transactions contemplated by the merger agreement in light of the various factors described above and other factors that the members of the Versum board of directors believed were appropriate. In view of the complexity and wide variety of factors, both positive and negative, that the Versum board of directors considered in connection with its evaluation of the merger, the Versum board of directors did not find it practical, and did not attempt, to quantify, rank or otherwise assign relative or specific weights or values to any of the factors it considered in reaching its decision and did not undertake to make any specific determination as to whether any particular factor, or any aspect of any particular factor, was favorable or unfavorable to the ultimate determination of the Versum board of directors. In considering the factors discussed above, individual directors may have given different weights to different factors.

The foregoing description of Versum's consideration of the factors supporting the merger is forward-looking in nature. This information should be read in light of the factors discussed in the section entitled **Cautionary Statement Regarding Forward-Looking Statements** beginning on page 41.

Opinion of Entegris Financial Advisor

Entegris retained Morgan Stanley to act as financial advisor to the Entegris board of directors in connection with the proposed merger of Entegris and Versum. The Entegris board of directors selected Morgan Stanley to act as its financial advisor based on Morgan Stanley's qualifications, expertise and reputation, its knowledge of and involvement in recent transactions in the industry, and its knowledge of Entegris' business and affairs. At the meeting of the Entegris board of directors on January 27, 2019, Morgan Stanley rendered its oral opinion, subsequently confirmed in writing, that as of such date, and based upon and subject to the various assumptions made, procedures followed, matters considered, and qualifications and limitations on the scope of the review undertaken by Morgan Stanley as set forth in the written opinion, the exchange ratio pursuant to the merger agreement was fair from a financial point of view to Entegris.

The full text of the written opinion of Morgan Stanley, dated as of January 27, 2019, which sets forth, among other things, the assumptions made, procedures followed, matters considered and qualifications and limitations on the scope of the review undertaken by Morgan Stanley in rendering its opinion, is attached to this joint proxy statement/prospectus as Annex C. You are encouraged to read the entire opinion carefully and in its entirety. Morgan Stanley's opinion was rendered for the benefit of the Entegris board of directors, in its capacity as such, and addressed only the fairness from a financial point of view of the exchange ratio pursuant to the merger agreement to Entegris as of the date of the opinion. Morgan Stanley's opinion did not address any other aspect of the merger or related transactions, including the relative merits of the merger as compared to any other alternative business transaction, or other alternatives, the prices at which shares of Entegris common stock or Versum common stock would trade at any time in the future, or any compensation or compensation agreements arising from (or relating to) the merger which benefit any officer, director or employee of any party to the merger, or any class of such persons. The opinion was addressed to, and rendered for the benefit of, the Entegris board of directors and was not intended to, and does not, constitute advice or a recommendation to any holder of shares of Entegris common stock or any holder of shares of Versum common stock as to how to vote or act on any matter with respect to the merger or related transactions or any other action with respect to the transactions contemplated by the merger agreement, including the merger.

In connection with rendering its opinion, Morgan Stanley, among other things:

reviewed certain publicly available financial statements and other business and financial information of Versum and Entegris, respectively;

reviewed certain internal financial statements and other financial and operating data concerning Versum and Entegris, respectively;

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reviewed certain financial projections prepared by the management of (i) Versum relating to the business and operations of Versum, (ii) Versum relating to the business and operations of Versum, as modified by the management of Entegris, and (iii) Entegris relating to the business and operations of Entegris;

reviewed information relating to certain strategic, financial and operational benefits anticipated from the merger, prepared by the managements of Versum and Entegris, respectively;

discussed the past and current operations and financial condition and the prospects of Versum, including information relating to certain strategic, financial and operational benefits anticipated from the merger, with senior executives of Versum;

discussed the past and current operations and financial condition and the prospects of Entegris, including information relating to certain strategic, financial and operational benefits anticipated from the merger, with senior executives of Entegris;

reviewed the pro forma impact of the merger on Entegris earnings per share, cash flow, consolidated capitalization and certain financial ratios;

reviewed the reported prices and trading activity for Versum common stock and Entegris common stock;

compared the financial performance of Versum and Entegris and the prices and trading activity of Versum common stock and Entegris common stock with that of certain other publicly-traded companies comparable with Versum and Entegris, respectively, and their securities;

reviewed the financial terms, to the extent publicly available, of certain comparable transactions;

participated in certain discussions and negotiations among representatives of Versum and Entegris and their financial and legal advisors;

reviewed the merger agreement and certain related documents; and

performed such other analyses and considered such other factors as Morgan Stanley deemed appropriate. In arriving at its opinion, Morgan Stanley assumed and relied upon, without independent verification, the accuracy and completeness of the information that was publicly available or supplied, or otherwise made available to Morgan Stanley by Versum and Entegris, and formed a substantial basis for its opinion. With respect to the financial projections, including information relating to certain strategic, financial and operational benefits anticipated from the merger, Morgan Stanley assumed that they had been reasonably prepared on bases reflecting the best currently available estimates and judgments of the respective managements of Versum and Entegris of the future financial

performance of Versum and Entegris. In addition, Morgan Stanley assumed that the merger will be consummated in accordance with the terms set forth in the merger agreement without any waiver, amendment or delay of any terms or conditions, including, among other things, that the merger will be treated as a tax-free reorganization, pursuant to the Internal Revenue Code of 1986, as amended, and that the definitive merger agreement would not differ in any material respect from the draft thereof furnished to Morgan Stanley. Morgan Stanley assumed that, in connection with the receipt of all the necessary governmental, regulatory or other approvals and consents required for the proposed merger, no delays, limitations, conditions or restrictions will be imposed that would have a material adverse effect on the contemplated benefits expected to be derived in the proposed merger. Morgan Stanley relied upon, without independent verification, the assessment by the managements of Versum and Entegris of: (i) the strategic, financial and other benefits expected to result from the merger; (ii) the timing and risks associated with the integration of Versum and Entegris; (iii) their ability to retain key employees of Versum and Entegris, respectively and (iv) the validity of, and risks associated with, Versum's and Entegris' existing and future technologies, intellectual property, products, services and business models. Morgan Stanley is not a legal, tax or regulatory advisor. Morgan Stanley is a financial advisor only and relied upon, without independent verification, the assessment of Entegris and Versum and their legal, tax or regulatory

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advisors with respect to legal, tax, or regulatory matters. Morgan Stanley expressed no opinion with respect to the fairness of the amount or nature of the compensation to any officers, directors or employees of any party to the merger, or any class of such persons, relative to the exchange ratio. Morgan Stanley did not make any independent valuation or appraisal of the assets or liabilities of Versum or Entegris, nor was Morgan Stanley furnished with any such valuations or appraisals. Morgan Stanley's opinion was necessarily based on financial, economic, market and other conditions as in effect on, and the information made available to Morgan Stanley as of, January 27, 2019. Events occurring after January 27, 2019 may affect Morgan Stanley's opinion and the assumptions used in preparing it, and Morgan Stanley did not assume any obligation to update, revise or reaffirm its opinion.

Summary of Financial Analyses

The following is a brief summary of the material financial analyses performed by Morgan Stanley in connection with its oral opinion and the preparation of its written opinion dated January 27, 2019. The following summary is not a complete description of Morgan Stanley's opinion or the financial analyses performed and factors considered by Morgan Stanley in connection with its opinion, nor does the order of analyses described represent the relative importance or weight given to those analyses. In connection with arriving at its opinion, Morgan Stanley considered all of its analyses as a whole and did not attribute any particular weight to any analysis described below. Considering any portion of such analyses and factors considered, without considering all analyses and factors, could create a misleading or incomplete view of the process underlying Morgan Stanley's opinion. Some of these summaries of financial analyses include information presented in tabular format. In order to fully understand the financial analyses used by Morgan Stanley, the tables must be read together with the text of each summary. The tables alone do not constitute a complete description of the financial analyses. Furthermore, mathematical analysis (such as determining the average or median) is not in itself a meaningful method of using the data referred to below.

In performing the financial analyses summarized below and in arriving at its opinion, Morgan Stanley utilized and relied upon certain financial projections provided by Entegris and Versum's managements and referred to below. For further information regarding the financial projections, see the section entitled **Entegris Unaudited Financial Projections** beginning on page 115.

On January 27, 2019, Versum and Entegris entered into the merger agreement pursuant to which each share of Versum common stock (other than Versum excluded shares), would be exchanged for 1.120 shares of Entegris common stock. This exchange ratio represented an implied price of \$35.08 per share of Versum common stock. Based on the exchange ratio, Morgan Stanley calculated that, as a result of the merger, Entegris stockholders would own approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris fully diluted shares including equity awards (using the treasury method) (such information provided by the managements of Entegris and Versum), and Versum stockholders would own the remaining approximately 47.3% of Entegris following completion of the merger pursuant to the merger agreement.

Relative Public Trading Multiples

Morgan Stanley performed a public trading comparables analysis, which attempts to provide an implied value of a company by comparing it to similar companies that are publicly traded. Morgan Stanley reviewed and compared certain financial estimates for each of Entegris and Versum with comparable publicly available consensus equity analyst research estimates for selected companies that share similar business characteristics and have certain comparable operating characteristics including, among other things, similar revenue growth rates, profitability, scale and/or other similar operating characteristics (which companies are referred to as the comparable companies). These companies were the following:

Platform Specialty Products Corp. (now known as Element Solutions)

Cabot Microelectronics Corporation

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In the case of applying the analysis to Entegris, Versum was included in the group of comparable companies. In the case of applying the analysis to Versum, Entegris was included in the group of comparable companies.

For purposes of this analysis, Morgan Stanley analyzed the ratio of (i) aggregate value, which Morgan Stanley defined as fully diluted market capitalization plus total debt, plus non-controlling interest, less cash and cash equivalents, to EBITDA, which Morgan Stanley defined as net income excluding net interest expense, income tax expense and certain other non-cash and non-recurring items, principally depreciation and amortization, (ii) price to earnings, which Morgan Stanley defined as the ratio of price per share to estimated earnings per share, and (iii) equity value, which Morgan defined as fully diluted market capitalization, to levered free cash flow, which Morgan Stanley defined as net income plus depreciation and amortization less capital expenditures, for calendar years 2019 and 2020, of each of these comparable companies based on publicly available financial information compiled by Thomson Reuters for comparison purposes. For the purposes of this analysis and certain other analyses described below, Morgan Stanley utilized (i) publicly available financial information for each of Entegris and Versum available as of January 25, 2019 (the last full trading day prior to the meeting of the Entegris board of directors to approve and adopt the merger agreement and approve the transactions contemplated thereby, including the merger), which is referred to as the Entegris street case and the Versum Street case, as applicable, (ii) financial projections prepared by Entegris relating to the business and operations of Entegris, which is referred to as the Entegris management case, and (iii) financial projections prepared by Versum relating to the business and operations of Versum, as modified by Entegris, which is referred to as the Versum growth sensitivity case. For further information regarding the financial projections, see the section entitled **Entegris Unaudited Financial Projections** beginning on page 115.

Based on its analysis of the relevant metrics for each of the comparable companies and upon the application of its professional judgment and experience, Morgan Stanley selected representative ranges of aggregate value to EBITDA multiples, price to earnings multiples, and equity value to levered free cash flow multiples and applied these ranges of multiples to the estimated relevant metric for each of Entegris and Versum, as applicable.

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Based on each of Versum's and Entegris' fully diluted shares, including equity awards (using the treasury method), as provided by Entegris and Versum, as applicable, Morgan Stanley calculated the estimated implied exchange ratio range as set forth in the table below. Morgan Stanley calculated the high end of the exchange ratio range by dividing the highest per share price for Versum resulting from the application of the relevant multiples described above by the lowest per share price for Entegris resulting from the application of the relevant multiples described above. Morgan Stanley calculated the low end of the exchange ratio range by dividing the lowest per share price for Versum resulting from the application of the relevant multiples described above by the highest per share price for Entegris resulting from the application of the relevant multiples described above.

Public Trading Multiples	Implied Transaction Exchange Ratio Range	
<u>CY2019E AV / EBITDA</u>		
Entegris street case to Versum street case	0.973x	1.622x
Entegris management case to Versum growth sensitivity case	0.926x	1.540x
<u>CY2020E AV / EBITDA</u>		
Entegris street case to Versum street case	0.951x	1.445x
Entegris management case to Versum growth sensitivity case	0.922x	1.395x
<u>CY2019E Price / EPS</u>		
Entegris street case to Versum street case	1.039x	1.414x
Entegris management case to Versum growth sensitivity case	1.004x	1.367x
<u>CY2020E Price / EPS</u>		
Entegris street case to Versum street case	0.987x	1.378x
Entegris management case to Versum growth sensitivity case	0.982x	1.371x
<u>CY2019E Equity Value / LFCF</u>		
Entegris street case to Versum street case	0.768x	1.363x
Entegris management case to Versum growth sensitivity case	0.765x	1.357x
<u>CY2020E Equity Value / LFCF</u>		
Entegris street case to Versum street case	0.892x	1.321x
Entegris management case to Versum growth sensitivity case	0.818x	1.210x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares, including equity awards (using the treasury method), as provided by Versum and Entegris.

No company utilized in the public trading comparables analysis is identical to either Entegris or Versum. In evaluating the comparable companies, Morgan Stanley made numerous assumptions with respect to industry performance, general business, regulatory, economic, market and financial conditions and other matters, many of which are beyond the control of Entegris, Versum or Morgan Stanley. These include, among other things, the impact of competition on Entegris' or Versum's business and the industry generally, industry growth, and the absence of any adverse material change in the financial condition and prospects of Entegris, or Versum and the industry, and in the financial markets in general. Mathematical analysis (such as determining the average or median) is not in and of itself a meaningful method of using comparable company data.

Relative Discounted Equity Value

Morgan Stanley performed a discounted equity value analysis, which is designed to provide insight into the potential future equity value of a company as a function of the company's estimated future earnings. The resulting equity value is subsequently discounted to arrive at an estimate of the implied present value for such company's potential future equity value. In connection with this analysis, Morgan Stanley calculated a range of

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implied present equity values per share on a stand-alone basis for each of Entegris and Versum. To calculate the discounted equity value, Morgan Stanley utilized estimated fiscal year 2021 EBITDA from the Versum growth sensitivity case, in the case of Versum, and the estimated calendar year 2021 EBITDA from the Entegris management case, in the case of Entegris. Based upon the application of its professional judgment and experience, Morgan Stanley applied a range of EBITDA multiples (based on the range of EBITDA multiples for the comparable companies described above under **Opinion of Entegris Financial Advisor Relative Public Trading Multiples** beginning on page 98 and the growth profile of each of Entegris and Versum, as applicable) to these estimates and applied a discount rate of 11.3%, in the case of Versum, and 11.4%, in the case of Entegris, which rates were selected based on each company's estimated cost of equity.

Based on the implied present equity values per share determined as described above for Entegris relative to those determined for Versum, Morgan Stanley calculated the following implied exchange ratio reference range:

Entegris management case to	Implied Transaction
Versum growth sensitivity case	Exchange
	Ratio Range
	0.896x 1.412x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares, including equity awards (using the treasury method), as provided by Versum and Entegris.

Relative Discounted Cash Flow Analysis

Morgan Stanley performed a discounted cash flow analysis, which is designed to provide an implied value of a company by calculating the present value of the estimated future cash flows and terminal value of such company. Morgan Stanley calculated the estimated present value of the stand-alone unlevered after-tax free cash flows that Entegris and Versum were each forecasted to generate during calendar years 2019 through 2023, in the case of Entegris, and Versum's fiscal years 2019 through 2023, in the case of Versum. For purposes of this analysis, unlevered after-tax free cash flows were calculated as EBITDA, less taxes, plus change in net working capital and less capital expenditures. Financial data used in this analysis were based on the Entegris management case for calendar years 2019 through 2021, and the estimates for calendar years 2022 and 2023 were developed at the direction, and approval, of the management of Entegris by an extrapolation of the relevant 2021 estimates, in the case of Entegris, and the Versum growth sensitivity case for Versum's fiscal years 2019 through 2021, and the estimates for Versum's fiscal years 2022 and 2023 were developed at the direction and approval of the management of Entegris by an extrapolation of the relevant fiscal year 2021 estimates, in the case of Versum.

Morgan Stanley then estimated the terminal values of each of Entegris and Versum at the end of the forecast period by using perpetual growth rates ranging from 2.0% to 3.0%, which perpetual growth rates were selected upon the application of Morgan Stanley's professional judgment and experience. The cash flows and terminal values were then discounted to present value as of December 31, 2018 using discount rates ranging from 9.4% to 11.0%, in the case of Entegris, and 9.0% to 10.6%, in the case of Versum, which discount rates were selected, upon the application of Morgan Stanley's professional judgment and experience, to reflect a weighted average cost of capital calculation for Entegris and Versum, respectively. The resulting aggregate values were then adjusted for net debt and non-controlling interest. This analysis resulted in an implied per share equity value reference range for Entegris of \$30.98 to \$43.83 and an implied per share equity value reference range for Versum common stock of \$36.42 to \$53.03.

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Based on the implied per share equity value reference range for Entegris relative to the per share reference range for Versum described above, Morgan Stanley calculated the following implied exchange ratio reference range:

Relative Discounted Cash Flow	Implied Transaction Exchange Ratio Range
As of January 25, 2019	0.831x - 1.712x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied an Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares including equity awards (using the treasury method) as provided by Versum and Entegris.

Other Information

Morgan Stanley observed additional factors that were not considered part of Morgan Stanley's financial analysis with respect to its opinion, but which were noted as reference data for the Entegris board of directors, including the following information described under the sections titled **Opinion of Entegris Financial Advisor Relative Precedent Merger of Equals Transactions Analysis**, **Opinion of Entegris Financial Advisor Relative Historical Exchange Ratio**, **Opinion of Entegris Financial Advisor Relative Equity Research Analysts Future Price Targets**, **Opinion of Entegris Financial Advisor Relative Contribution Analysis**, beginning on pages 102, 103, 104 and 105, respectively.

Relative Precedent Merger of Equals Transactions Analysis

Morgan Stanley performed a precedent merger of equals transactions analysis, which is designed to imply a range of exchange ratios for Entegris and Versum stockholders, based on a premium paid on selected transactions that share some characteristics with the merger.

In connection with its analysis, Morgan Stanley compared premiums for 23 publicly announced selected merger of equals transactions with transaction values between \$1 billion and \$5 billion from May 12, 2009 to January 25, 2019 (the last full trading day prior to the meeting of the Entegris board of directors to approve the merger agreement and approve the transactions contemplated thereby, including the merger), in which the consideration received was 100% stock and the target stockholders' percentage ownership of the merged entity was between 40% and 50%. The following is a list of these transactions:

Aldar Properties PJSC / Sorouh Real Estate PJSC

Lam Research Corporation / Novellus Systems, Inc.

Fidelity National Information Services, Inc. / Metavante Technologies, Inc.

The Stanley Works Limited / The Black & Decker Corporation

Sterling Bancorp / Astoria Financial Corporation

SandRidge Energy, Inc. / Arena Resources, Inc.

Cyberonics, Inc. / Sorin S.p.A.

BBCN Bancorp, Inc. / Wilshire Bancorp, Inc.

Anatolia Minerals Development Limited / Avoca Resources Limited

London Stock Exchange Group PLC / TMX Group Inc.

RF Micro Devices, Inc. / TriQuint Semiconductor, Inc.

Envision Healthcare Holdings, Inc. / AmSurg Corp.

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Shinsei Bank, Limited / Aozora Bank, Ltd.

Office Depot, Inc. / OfficeMax Incorporated

McDermott International, Inc. / Chicago Bridge & Iron Company N.V.

Cloudera, Inc. / Hortonworks, Inc.

Henderson Group plc / Janus Capital Group Inc.

United Airlines, Inc. / Continental Airlines, Inc.

Carphone Warehouse Limited / Dixons Retail plc

Standard Pacific Corp. / The Ryland Group, Inc.

Holly Corporation / Frontier Oil Corporation

Valeant Pharmaceuticals International / Biovail Corporation

Drogasil S.A. / Raia S.A.

Based on the transactions listed above, Morgan Stanley selected a representative range of implied exchange ratio premiums to the spot and 30-trading day average exchange ratios applicable to such transactions, and applied such representative premiums to the spot exchange ratio of Entegris and Versum of 1.011 and the 30-trading day average exchange ratio for Entegris and Versum of 1.014. The following table summarizes Morgan Stanley's analysis:

Relevant Period	Implied Transaction Exchange Ratio Range
Spot Exchange Ratio Premium	1.027x 1.167x
30 Trading Day Average Exchange Ratio Premium	1.021x 1.156x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares including equity awards (using the treasury method) as provided by Versum and Entegris.

No company or transaction utilized in the precedent transactions analysis is identical to Entegris, Versum or the merger. In evaluating the precedent transactions, Morgan Stanley made judgments and assumptions with regard to industry performance, general business, regulatory, economic, market and financial conditions and other matters, which are beyond the control of Entegris and Versum, such as the impact of competition on the business of Entegris, Versum or the industry generally, industry growth and the absence of any material adverse change in the financial condition of Entegris, Versum or the industry or in the financial markets in general, which could affect the public trading value of the companies and the aggregate value and equity value of the transactions to which they were being compared.

Relative Historical Exchange Ratio

Morgan Stanley reviewed the range of the ratio of closing prices of Versum common stock divided by the corresponding closing prices of Entegris common stock over the 52-week period ended on January 25, 2019 (the last full trading day prior to the meeting of the Entegris board of directors to adopt the merger agreement and approve the transactions contemplated thereby, including the merger). For the 52-week period reviewed, Morgan Stanley observed the relevant range of low and high exchange ratios.

Period Ending January 25, 2019	Implied Transaction Exchange Ratio Range
52-Week Trading Range	0.633x 1.768x

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Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares including equity awards (using the treasury method) as provided by Versum and Entegris.

Relative Equity Research Analysts' Future Price Targets

Morgan Stanley reviewed future public market trading price targets for Entegris common stock and Versum common stock prepared and published by equity research analysts prior to January 25, 2019 (the last full trading day prior to the meeting of the Entegris board of directors to adopt the merger agreement and approve the transactions contemplated thereby, including the merger). These forward targets reflected each analyst's estimate of the 12-month future public market trading price of Entegris common stock and Versum common stock. Morgan Stanley also discounted such 12 month future market trading price estimates by the cost of equity for Entegris (11.4%) and Versum (11.3%), respectively.

The public market trading price targets published by equity research analysts do not necessarily reflect current market trading prices for Entegris common stock or Versum common stock, as applicable, and these estimates are subject to uncertainties, including the future financial performance of Entegris and Versum, and future financial market conditions.

12 Month Research Estimates	Implied Transaction Exchange Ratio Range
As of January 25, 2019	0.591x - 1.567x
Discounted at respective cost of equity	0.591x - 1.568x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholder ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares, including equity awards (using the treasury method), as provided by Versum and Entegris.

Table of Contents***Relative Contribution Analysis***

Morgan Stanley compared Entegris' and Versum's respective percentage contributions for certain financial metrics described below to the combined company and determined the implied exchange ratio based on such contributions. Morgan Stanley utilized the Versum street case and the Entegris street case, as applicable, for EBITDA, net income and levered free cash flow for calendar years 2019 and 2020 for each of Entegris and Versum, as well as estimates of EBITDA, net income and levered free cash flow for calendar years 2018, 2019 and 2020 set forth in the Entegris management case and the Versum growth sensitivity case, as applicable. The following table summarizes Morgan Stanley's analysis:

Implied Transaction Exchange Ratios	
Entegris Management / Versum Growth Sensitivity Cases	
(2018E	2020E)
EBITDA (2018E)	1.233x
EBITDA (2019E)	1.194x
EBITDA (2020E)	1.133x
Net Income (2018E)	1.087x
Net Income (2019E)	1.170x
Net Income (2020E)	1.158x
Levered FCF (2018E)	1.094x
Levered FCF (2019E)	1.019x
Levered FCF (2020E)	0.995x
Street Cases (2019E	
2020E)	
EBITDA (2019E)	1.258x
EBITDA (2020E)	1.174x
Net Income (2019E)	1.200x
Net Income (2020E)	1.125x
Levered FCF (2019E)	1.021x
Levered FCF (2020E)	1.086x

Morgan Stanley noted that the exchange ratio pursuant to the merger agreement was 1.120x, which implied Entegris stockholders ownership of approximately 52.7% of the fully diluted shares of Entegris common stock based on each of Versum's and Entegris' fully diluted shares including equity awards (using the treasury method) as provided by Versum and Entegris.

General

In connection with the review of the merger by the Entegris board of directors, Morgan Stanley performed a variety of financial and comparative analyses for purposes of rendering its opinion. The preparation of a financial opinion is a complex process and is not necessarily susceptible to a partial analysis or summary description. In arriving at its opinion, Morgan Stanley considered the results of all of its analyses as a whole and did not attribute any particular weight to any analysis or factor it considered. Morgan Stanley believes that selecting any portion of its analyses, without considering all analyses as a whole, would create an incomplete view of the process underlying its analyses and opinion. In addition, Morgan Stanley may have given various analyses and factors more or less weight than other analyses and factors, and may have deemed various assumptions more or less probable than other assumptions. As a result, the ranges of valuations resulting from any particular analysis described above should not be taken to be

Morgan Stanley's view of the actual value of Entegris or Versum. In performing its analyses, Morgan Stanley made judgments and assumptions with regard to industry performance, general business, regulatory, economic, market and financial conditions and other matters, which are beyond the control of Entegris or Versum. Any estimates contained in Morgan Stanley's analyses are not necessarily indicative of future results or actual values, which may be significantly more or less favorable than those suggested by such estimates.

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Morgan Stanley conducted the analyses described above solely as part of its analysis of the fairness from a financial point of view of the exchange ratio pursuant to the merger agreement to Entegris and in connection with the delivery of its opinion, dated January 27, 2019, to the Entegris board of directors. These analyses do not purport to be appraisals or to reflect the prices at which shares of Entegris common stock or Versum common stock might actually trade.

The exchange ratio was determined by Entegris and Versum through arm's-length negotiations between Entegris and Versum and was approved by the Entegris board of directors. Morgan Stanley provided advice to the Entegris board of directors during these negotiations. Morgan Stanley did not, however, recommend any specific exchange ratio to Entegris or the Entegris board of directors or that any specific exchange ratio constituted the only appropriate exchange ratio for the merger.

Morgan Stanley's opinion and its presentation to the Entegris board of directors was one of many factors taken into consideration by the Entegris board of directors in deciding to approve the merger agreement and approve the transactions contemplated thereby, including the merger. Consequently, the analyses as described above should not be viewed as determinative of the opinion of the Entegris board of directors with respect to the exchange ratio pursuant to the merger agreement or of whether the Entegris board of directors would have been willing to agree to a different exchange ratio. Morgan Stanley's opinion was approved by a committee of Morgan Stanley investment banking and other professionals in accordance with Morgan Stanley's customary practice.

Morgan Stanley's opinion was not intended to, and does not, constitute advice or a recommendation to any holder of shares of Entegris common stock or Versum common stock as to how to vote or act on any matter with respect to the merger or related transactions or any other action with respect to the transactions contemplated by the merger agreement. Morgan Stanley's opinion did not address any other aspect of the merger or related transactions, including the relative merits of the merger as compared to any other alternative business transaction, or other alternatives, the prices at which shares of Entegris common stock or Versum common stock would trade at any time in the future, or any compensation or compensation agreements arising from (or relating to) the merger which benefit any officer, director or employee of any party to the merger, or any class of such persons.

The Entegris board of directors retained Morgan Stanley based upon Morgan Stanley's qualifications, experience and expertise. Morgan Stanley is a global financial services firm engaged in the securities, investment management and individual wealth management businesses. Its securities business is engaged in securities underwriting, trading and brokerage activities, foreign exchange, commodities and derivatives trading, and prime brokerage, as well as providing investment banking, financing and financial advisory services. Morgan Stanley, its affiliates, directors and officers may at any time invest on a principal basis or manage funds that invest, hold long or short positions, finance positions, and may trade or otherwise structure and effect transactions, for their own account or for the accounts of their customers, in debt or equity securities or loans of Entegris, Versum or any other company, or any currency or commodity, that may be involved in the transactions contemplated by the merger agreement, or any related derivative instrument.

Under the terms of its engagement letter, Morgan Stanley provided Entegris with financial advisory services and a financial opinion in connection with the merger, described in this section and attached to this statement as Annex C, and Entegris has agreed to pay Morgan Stanley a fee of approximately \$25 million for its services, \$20 million of which is contingent upon the closing of the merger and \$5 million of which was paid upon the delivery by Morgan Stanley of the financial opinion described in this section. In addition, if the proposed merger is consummated, Entegris may (but will not be obligated to) pay up to an additional \$5 million to Morgan Stanley as a discretionary bonus for its contributions in connection with the merger. Entegris has also agreed to reimburse Morgan Stanley for its reasonable expenses, including reasonable fees of outside counsel and other professional advisors, incurred in connection with its

engagement. In addition, Entegris has agreed to indemnify Morgan Stanley and its affiliates, their respective directors, officers, agents and employees and each other person, if any, controlling Morgan Stanley or any of its affiliates against certain liabilities and expenses relating to or arising out of Morgan Stanley's engagement. At the time of the execution of the merger agreement, one of Morgan Stanley's

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affiliates entered into a financing commitment letter with Entegris to provide financing under certain circumstances. Entegris does not need to access the capital contemplated by the commitment letter. In the two years prior to the date of its opinion, Morgan Stanley and its affiliates have provided financing services to Entegris and have received aggregate fees of approximately \$2 million from Entegris in connection with such services. During the two-year period prior to the date of Morgan Stanley's opinion, Morgan Stanley and its affiliates have not been engaged on any financial advisory or financing assignments for Versum and have not received any fees for such services from Versum during such time. Morgan Stanley may also seek to provide financial advisory and financing services to Entegris and Versum and their respective affiliates in the future and would expect to receive fees for the rendering of these services.

Opinion of Versum's Financial Advisor

Versum retained Lazard to act as its financial advisor in connection with the merger. As part of this engagement, Versum requested that Lazard evaluate the fairness, from a financial point of view, to Versum stockholders (other than holders of Versum excluded shares) of the exchange ratio. At a meeting of the Versum board of directors held to evaluate the merger on January 27, 2019, Lazard rendered an oral opinion to the Versum board of directors, subsequently confirmed in writing by delivery of Lazard's opinion dated as of the same date, to the effect that, as of such date, and based upon and subject to the assumptions, procedures, factors, qualifications and limitations set forth in Lazard's written opinion, the exchange ratio was fair, from a financial point of view, to Versum stockholders (other than the holders of Versum excluded shares).

The full text of Lazard's written opinion, dated January 27, 2019, which sets forth the assumptions made, procedures followed, factors considered and qualifications and limitations on the review undertaken by Lazard in connection with its opinion, is attached as Annex D to this joint proxy statement/prospectus and is incorporated herein by reference. We encourage you to read Lazard's opinion carefully and in its entirety. Lazard's opinion was provided for the use and benefit of the Versum board of directors (in its capacity as such) in its evaluation of the merger, and addressed only the fairness, as of the date of the opinion, from a financial point of view, to Versum stockholders of the exchange ratio provided for in the merger. Lazard's opinion is not intended to and does not constitute a recommendation to any stockholder as to how such stockholder should vote or act with respect to the merger or any matter relating thereto.

Lazard's opinion was necessarily based on economic, monetary, market and other conditions as in effect on, and the information made available to Lazard as of, the date of Lazard's opinion. Lazard assumed no responsibility for updating or revising its opinion based on circumstances or events occurring after the date of Lazard's opinion. Lazard's opinion did not express any opinion as to the price at which shares of Versum common stock or Entegris common stock may trade at any time subsequent to the announcement of the merger. In connection with its engagement, Lazard was not authorized to, and Lazard did not, solicit indications of interest from third parties regarding a potential transaction with Versum. In addition, Lazard's opinion does not address the relative merits of the merger as compared to any other transaction or business strategy in which Versum might engage or the merits of the underlying decision by Versum to engage in the merger.

In connection with its opinion, Lazard:

reviewed the financial terms and conditions of a draft, dated January 26, 2019, of the merger agreement;

reviewed certain publicly available historical business and financial information relating to Versum and Entegris;

reviewed various financial forecasts and other data provided to Lazard by Versum relating to the business of Versum, and extrapolations thereto based on the guidance of management of Versum and approved by Versum for Lazard's use;

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reviewed various financial forecasts and other data provided to Lazard by Entegris relating to the business of Entegris, and extrapolations thereto based on the guidance of management of Versum and approved by Versum for Lazard's use;

reviewed the projected synergies and other benefits, including the amount and timing thereof, anticipated by the managements of Versum and Entegris to be realized from the merger;

held discussions with members of the senior managements of Versum and Entegris with respect to the businesses and prospects of Versum and Entegris, respectively, and the projected synergies and other benefits anticipated by the managements of Versum and Entegris to be realized from the merger;

reviewed public information with respect to other companies in lines of business Lazard believed to be generally relevant in evaluating the businesses of Versum and Entegris;

reviewed historical stock prices and trading volumes of Versum common stock and Entegris common stock;

reviewed the potential pro forma financial impact of the merger on the combined company based on the financial forecasts referred to above relating to Versum and Entegris; and

conducted such other financial studies, analyses and investigations as Lazard deemed appropriate.

Lazard assumed and relied upon the accuracy and completeness of the foregoing information, without independent verification of such information. Lazard has not conducted any independent valuation or appraisal of any of the assets or liabilities (contingent or otherwise) of Versum or Entegris or concerning the solvency or fair value of Versum or Entegris, and Lazard has not been furnished with any such valuation or appraisal. With respect to the financial forecasts utilized in Lazard's analyses, including the extrapolations and the forecasts related to projected synergies and other benefits anticipated by the managements of Versum and Entegris to be realized from the merger, Lazard assumed, with the consent of Versum, that they have been reasonably prepared on bases reflecting the best currently available estimates and judgments as to the future financial performance of Versum and Entegris, respectively. In addition, Lazard assumed, with the consent of Versum, that such projected synergies and other benefits will be realized in the amounts and at the times contemplated thereby. Lazard assumed no responsibility for and expressed no view as to any such forecasts or the assumptions on which they are based.

In rendering its opinion, Lazard assumed, with the consent of Versum, that the merger will be consummated on the terms described in the merger agreement, without any waiver or modification of any material terms or conditions. Representatives of Versum have advised Lazard, and Lazard assumed, that the executed merger agreement conforms to the draft reviewed by Lazard in all material respects. Lazard also assumed, with the consent of Versum, that obtaining the necessary governmental, regulatory or third party approvals and consents for the merger will not have an adverse effect on Versum, Entegris or the merger that is material in any respect to Lazard's analysis in connection with its opinion. Lazard further assumed, with the consent of Versum, that the merger will qualify for U.S. federal income tax purposes as a reorganization within the meaning of Section 368(a) of the Internal Revenue Code of 1986, as amended. Lazard did not express any opinion as to any tax or other consequences that might result from the merger, nor does Lazard's opinion address any legal, tax, regulatory or accounting matters, as to which Lazard understood that

Versum obtained such advice as it deemed necessary from qualified professionals. Lazard expressed no view or opinion as to any terms or other aspects (other than the exchange ratio to the extent expressly specified herein) of the merger, including, without limitation, the form or structure of the merger or any agreements or arrangements entered into in connection with, or contemplated by, the merger. In addition, Lazard expressed no view or opinion as to the fairness of the amount or nature of, or any other aspects relating to, the compensation to any officers, directors or employees of any parties to the merger, or class of such persons, relative to the exchange ratio or otherwise.

Table of Contents***Summary of Lazard's Financial Analyses***

The following is a summary of the material financial analyses reviewed with the Versum board of directors in connection with Lazard's opinion, dated January 27, 2019. The summary of Lazard's analyses and reviews provided below is not a complete description of the analyses and reviews underlying Lazard's opinion. The preparation of a fairness opinion is a complex process involving various determinations as to the most appropriate and relevant methods of analysis and review and the application of those methods to particular circumstances, and, therefore, is not readily susceptible to summary description.

In arriving at its opinion, Lazard did not draw, in isolation, conclusions from or with regard to any particular factor or analysis considered by it. Rather, Lazard made its determination as to fairness on the basis of its experience and professional judgment after considering the results of all of the analyses. Considering selected portions of the analyses and reviews in the summary set forth below, without considering the analyses and reviews as a whole, could create an incomplete or misleading view of the analyses and reviews underlying Lazard's opinion.

For purposes of its analyses and reviews, Lazard considered industry performance, general business, economic, market and financial conditions and other matters, many of which are beyond the control of Versum and Entegris. No company or business used in Lazard's analyses and reviews as a comparison is identical to Versum, Entegris or the combined company, and an evaluation of the results of those analyses and reviews is not entirely mathematical. Rather, the analyses and reviews involve complex considerations and judgments concerning financial and operating characteristics and other factors that could affect the acquisition, public trading or other values of the companies or businesses used in Lazard's analyses and reviews. The estimates contained in Lazard's analyses and reviews and the ranges of valuations resulting from any particular analysis or review are not necessarily indicative of actual values or predictive of future results or values, which may be significantly more or less favorable than those suggested by Lazard's analyses and reviews. In addition, analyses and reviews relating to the value of companies, businesses or securities do not purport to be appraisals or to reflect the prices at which companies, businesses or securities actually may be sold. Accordingly, the estimates used in, and the results derived from, Lazard's analyses and reviews are inherently subject to substantial uncertainty.

The summary of the analyses and reviews provided below includes information presented in tabular format. In order to fully understand Lazard's analyses and reviews, the tables must be read together with the full text of each summary. The tables alone do not constitute a complete description of Lazard's analyses and reviews. Considering the data in the tables below without considering the full description of the analyses and reviews, including the methodologies and assumptions underlying the analyses and reviews, could create a misleading or incomplete view of Lazard's analyses and reviews.

Except as otherwise noted, the following quantitative information, to the extent that it is based on market data, is based on market data as it existed on or before January 25, 2019, and is not necessarily indicative of current market conditions.

Public Trading Valuation Analysis***Versum and Entegris***

Lazard reviewed and analyzed certain financial information, valuation multiples and market trading data related to Cabot Microelectronics Corporation, which is referred to as Cabot Microelectronics, Entegris and Versum. Lazard reviewed and analyzed such information because it believed, based on its judgment and experience, Cabot Microelectronics to be similar to Versum's and Entegris' respective operations for purposes of these analyses. Although

Cabot Microelectronics is not identical or directly comparable to either Versum or Entegris, it was chosen because it is a publicly traded company with certain operations, results, business mixes or product profiles that, for the purposes of analysis, may be considered similar to certain operations, results, business mixes or product profiles of Versum and Entegris.

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The following table represents the results of Lazard's analysis of EV / EBITDA multiples of such companies as of January 25, 2019 based on (1) trading prices on January 25, 2019, (2) 10-trading day volume-weighted average prices and (3) 20-trading day volume-weighted average prices:

	EV / CY 2019E EBITDA on January 25, 2019	EV / CY 2019E EBITDA based on 10-Trading Day VWAP	EV / CY 2019E EBITDA based on 20-Trading Day VWAP
Cabot Microelectronics	10.3x	10.0x	9.9x
Entegris	10.2x	9.7x	9.5x
Versum	8.4x	8.1x	7.8x

Based on the above analysis and Lazard's professional judgment, Lazard selected ranges of multiples to estimated 2019 management-adjusted EBITDA for Versum included in the projections provided by Versum management and approved for Lazard's use by Versum management. Lazard applied a selected range of multiples of 8.0x to 9.5x to the estimated 2019 management-adjusted EBITDA of Versum. The results of the foregoing analysis implied an equity value per share range for Versum on a stand-alone basis of approximately \$32.65 to \$39.80.

Based on the above analysis and Lazard's professional judgment, Lazard selected ranges of multiples to estimated 2019 management-adjusted EBITDA for Entegris included in the projections provided by Entegris management and approved for Lazard's use by Versum management. Lazard applied a selected range of multiples of 8.0x to 9.5x to the estimated 2019 management-adjusted EBITDA of Entegris. The results of the foregoing analysis implied an equity value per share range for Entegris on a stand-alone basis of approximately \$25.65 to \$31.15.

Implied Exchange Ratio

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the public trading valuation analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the public trading valuation analysis described above. This analysis indicated a range of implied exchange ratios of 1.0482x to 1.5517x, as compared to the exchange ratio of 1.1200x provided for in the merger.

Discounted Cash Flow Analysis***Versum***

Lazard performed a discounted cash flow analysis of Versum to calculate the estimated present value of the standalone unlevered, after-tax free cash flows that Versum projected to generate through 2023 based on the projections provided by Versum management and extrapolated by Lazard based on discussions with, and guidance from, Versum management and approved for Lazard's use by Versum management. Lazard also calculated estimated terminal values for Versum by applying a perpetual growth rate of 1.5% to 2.5%. The standalone unlevered, after-tax free cash flows and terminal values were discounted to present value using discount rates ranging from 9.5% to 10.5%. The discount rates applicable to Versum were based, among other things, on Lazard's judgment of the

estimated range of weighted average cost of capital based on an analysis of the following three companies: Cabot Microelectronics, Entegris and Versum. A range of implied equity values for Versum was then calculated by reducing the range of implied enterprise values by the amount of Versum's net debt and noncontrolling interest as of December 31, 2018. Using the weighted average cost of capital range and the range of perpetual growth rates, the analysis indicated an equity value per share range for Versum on a stand-alone basis of approximately \$35.05 to \$45.40.

Table of Contents*Entegris*

Lazard performed a discounted cash flow analysis of Entegris to calculate the estimated present value of the standalone unlevered, after-tax free cash flows that Entegris projected to generate through 2023 based on the projections provided by Entegris management and extrapolated by Lazard based on discussions with, and guidance from, Versum management and approved for Lazard's use by Versum management. Lazard also calculated estimated terminal values for Entegris by applying a perpetual growth rate of 1.5% to 2.5%. The standalone unlevered, after-tax free cash flows and terminal values were discounted to present value using discount rates ranging from 9.5% to 10.5%. The discount rates applicable to Entegris were based, among other things, on Lazard's judgment of the estimated range of weighted average cost of capital based on an analysis of the following three companies: Cabot Microelectronics, Entegris and Versum. A range of implied equity values for Entegris was then calculated by reducing the range of implied enterprise values by the amount of Entegris' net debt and noncontrolling interest as of December 31, 2018, with Entegris' cash balance calculated pro forma for its share repurchases between January 1, 2019 and January 18, 2019. Using the weighted average cost of capital range and the range of perpetual growth rates, the analysis indicated an equity value per share range for Entegris on a stand-alone basis of approximately \$29.80 to \$38.05.

Implied Exchange Ratio

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the discounted cash flow analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the discounted cash flow analysis described above. This analysis indicated a range of implied exchange ratios of 0.9212x to 1.5235x, as compared to the exchange ratio of 1.1200x provided for in the merger.

Has-Gets Analysis From the Perspective of Versum Stockholders*Assumptions*

Utilizing the financial information described above, Lazard compared the stand-alone per share value of Versum to the pro forma per share value of the combined company after giving effect to the merger, (1) including realization of a range of projected synergies of \$75 million to \$100 million as provided to Lazard by Versum management and Entegris management, (2) including a 47.5% / 52.5% ownership split of the combined company by former Versum stockholders and former Entegris stockholders, respectively, and (3) excluding fees and expenses related to the merger.

Public Trading Value Analysis

Lazard used the above assumptions and calculated estimated premiums to Versum stockholders using an EV / EBITDA multiple analysis and an estimated 2019 management-adjusted EBITDA multiple. In addition to the assumptions described above, Lazard calculated the estimated premium to Versum stockholders (1) using the midpoints of the valuation ranges of 8.0x to 9.5x EV / EBITDA (based on 10-trading day and 20-trading day volume-weighted average prices of Entegris and Versum as further discussed above, and Lazard's professional judgment), and 9.0x to 10.5x EV / EBITDA (based on an illustrative 1.0x multiple expansion to the 8.0x to 9.5x valuation range, selected by Lazard based on Lazard's professional judgment), (2) adjusting the level of run-rate cost synergies (with the range of such cost synergies provided to Lazard by Versum management) and (3) adjusting the

base stock price on which the premium was calculated.

The following table sets forth the results of such analyses. The analyses and data described in the below table were presented to the Versum board of directors for informational purposes only and did not provide the basis for the rendering of Lazard's opinion.

Table of Contents**Midpoint of EV / EBITDA Multiple Range of 8.0x to 9.5x:**

	Run-Rate Synergies (\$ million)	Premium to Versum Stockholders⁽¹⁾
Versum Stock Price		
As of January 25, 2019	\$ 75	14.5%
	\$ 85	15.6%
	\$ 100	17.1%
10-Trading Day Volume-Weighted Average Price		
	\$ 75	20.7%
	\$ 85	21.7%
	\$ 100	23.3%
20-Trading Day Volume-Weighted Average Price		
	\$ 75	26.1%
	\$ 85	27.2%
	\$ 100	28.9%

Midpoint of EV / EBITDA Multiple Range of 9.0x to 10.5x:

	Run-Rate Synergies (\$ million)	Premium to Versum Stockholders⁽²⁾
Versum Stock Price		
As of January 25, 2019	\$ 75	28.6%
	\$ 85	29.5%
	\$ 100	31.0%
10-Trading Day Volume-Weighted Average Price		
	\$ 75	35.5%
	\$ 85	36.5%
	\$ 100	38.1%
20-Trading Day Volume-Weighted Average Price		
	\$ 75	41.5%
	\$ 85	42.6%
	\$ 100	44.2%

(1) Premiums calculated based on the midpoint of the value per share of Versum common stock that was calculated using the above-described public trading value analysis and the EV / EBITDA multiple range of 8.0x to 9.5x.

(2) Premiums calculated based on the midpoint of the value per share of Versum common stock that was calculated using the above-described public trading value analysis and the EV / EBITDA multiple range of 9.0x to 10.5x.

Discounted Cash Flow Analysis

Lazard used the above assumptions and calculated estimated premiums to Versum stockholders using a discounted cash flow analysis to determine the value of the combined company and projected synergies, discounted to a present value utilizing a weighted average cost of capital range of 9.5% to 10.5%. In addition to the assumptions described above, Lazard calculated the estimated premium to Versum stockholders (1) using the applicable midpoints of the

value per share of Versum common stock that were calculated using the discounted cash flow analysis, (2) adjusting for the level of run-rate cost synergies (with the range of such cost synergies provided to Lazard by Versum management) and (3) adjusting for base stock price on which the premium was calculated.

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The following table sets forth the results of such analyses. The analyses and data described in the below table were presented to the Versum board of directors for informational purposes only and did not provide the basis for the rendering of Lazard's opinion.

Versum Stock Price	Run-Rate Synergies (\$ million)	Premium to Versum Stockholders⁽¹⁾
As of January 25, 2019	\$ 75	30.9%
	\$ 85	31.8%
	\$ 100	33.3%
10-Trading Day Volume-Weighted Average Price	\$ 75	37.9%
	\$ 85	38.9%
	\$ 100	40.5%
20-Trading Day Volume-Weighted Average Price	\$ 75	44.1%
	\$ 85	45.1%
	\$ 100	46.8%

(1) Premiums calculated based on the applicable midpoints of the value per share of Versum common stock that were calculated using the above-described discounted cash flow analysis.

Other Analyses

The analyses and data described below were presented to the Versum board of directors for informational purposes only and did not provide the basis for the rendering of Lazard's opinion.

Present Value of Future Share Price

Lazard performed an illustrative analysis of the implied present value of Versum's future value per Versum common stock and Entegris' future value per Entegris common stock. This analysis is designed to provide an indication of the present value of a theoretical future value of a company's equity as a function of such company's estimated EBITDA and its assumed EV / EBITDA multiple. For this analysis, Lazard utilized projected net debt and noncontrolling interest and included the value of cumulative dividends received.

To calculate the range of the present value of future share prices for Versum, Lazard used the projections provided by Versum management and extrapolated by Lazard based on discussions with, and guidance from, Versum management and approved for Lazard's use by Versum management. Lazard applied a range of illustrative EV / NTM EBITDA multiples of 8.0x to 9.5x to forward EBITDA from fiscal year 2019 to fiscal year 2022, and then discounted such figures to present value using a discount rate of 12.2%, which reflects an estimate of Versum's cost of equity that was calculated by Lazard. This analysis resulted in a range of implied present values of approximately \$33.10 to \$42.60 per share of Versum common stock.

To calculate the range of the present value of future share prices for Entegris, Lazard used the projections provided by Entegris management and extrapolated by Lazard based on discussions with, and guidance from, Versum management and approved for Lazard's use by Versum management. Lazard applied a range of illustrative EV / NTM EBITDA

multiples of 8.0x to 9.5x to forward EBITDA from fiscal year 2019 to fiscal year 2022, and then discounted such figures to present value using a discount rate of 12.3%, which reflects an estimate of Entegris' cost of equity that was calculated by Lazard. This analysis resulted in a range of implied present values of approximately \$27.85 to \$35.60 per share of Entegris common stock.

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the present value of future share price analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the present value of future share price analysis described above. The resulting range of the implied exchange ratio was calculated to be 0.9298x to 1.5296x, as compared to the exchange ratio of 1.1200x provided for in the merger.

Table of Contents*Equity Analyst Price Targets Analysis (12 Months Target)*

Lazard reviewed publicly available equity analyst 12-month price targets based on Wall Street equity research reports prepared by nine equity analysts covering Versum and six equity analysts covering Entegris. Lazard observed target prices that ranged from \$26.00 to \$47.00 per share for Versum and \$30.00 to \$44.00 per share for Entegris.

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the equity analyst 12-month price targets analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the equity analyst 12-month price targets analysis described above. The resulting range of the implied exchange ratio was calculated to be 0.5909x to 1.5667x, as compared to the exchange ratio of 1.1200x provided for in the merger.

Equity Analyst Price Targets Analysis (Discounted to Present Value)

Lazard also discounted the observed 12-month price targets described above for Versum to present value by using an estimate of Versum's cost of equity of 12.2% that was calculated by Lazard to calculate a range of approximately \$23.20 to \$41.90 per share, and the observed 12-month price targets described above for Entegris to present value by using an estimate of Entegris' cost of equity of 12.3% that was calculated by Lazard to calculate a range of approximately \$26.70 to \$39.20 per share.

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the discounted equity analyst price targets analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the discounted equity analyst price targets analysis described above. The resulting range of the implied exchange ratio was calculated to be 0.5918x to 1.5693x, as compared to the exchange ratio of 1.1200x provided for in the merger.

52-Week Trading Range Analysis

Lazard reviewed the range of trading prices for Versum common stock and Entegris common stock for the 52-week period ended January 25, 2019. Lazard observed that, during this period, the intraday prices of Versum common stock ranged from \$25.02 to \$41.35 per share, and the intraday prices of Entegris common stock ranged from \$23.39 to \$39.55 per share.

Lazard then calculated an implied exchange ratio reference range by dividing the low end of the implied per share equity value reference range for Versum, by the high end of the implied per share equity value reference range for Entegris, in each case as determined by the 52-week trading range analysis described above, and by dividing the high end of the implied per share equity value reference range for Versum, by the low end of the implied per share equity value reference range for Entegris, in each case as determined by the 52-week trading range analysis described above. The resulting range of the implied exchange ratio was calculated to be 0.6326x to 1.7678x, as compared to the exchange ratio of 1.1200x provided for in the merger.

Miscellaneous

In connection with Lazard's services as financial advisor, Versum agreed to pay Lazard an aggregate fee for such services of \$20 million, \$2 million of which was paid upon the rendering of Lazard's opinion, and the remainder of which is contingent upon the consummation of the merger. In the event that Versum or its affiliates is paid the Entegris termination fee or any other break-up, termination, topping or similar fee in connection with a potential transaction, Versum has agreed to pay Lazard a fee equal to 20% of such amount net of Versum's fees

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and expenses in connection with such potential transaction, provided that the amount payable shall (1) not exceed \$15 million and (2) be credited (without duplication) against any amount that may be subsequently paid pursuant to the immediately preceding sentence. Versum also agreed to reimburse Lazard for certain reasonable expenses incurred in connection with Lazard's engagement and to indemnify Lazard and certain related persons under certain circumstances against certain liabilities that may arise from or relate to Lazard's engagement.

The financial advisory business of Lazard has in the past provided certain investment banking services to Versum, for which it has received compensation in the past two years in the aggregate amount of approximately \$250,000 (excluding any compensation in connection with the merger), including having advised Versum with respect to corporate preparedness matters. The financial advisory business of Lazard has not been retained by or paid fees by Entegris during the past two years.

Lazard, as part of its investment banking business, is continually engaged in valuations of businesses and securities in connection with mergers and acquisitions, negotiated underwritings, secondary distributions of listed and unlisted securities, private placements, leveraged buyouts and valuations for other purposes. In addition, in the ordinary course, Lazard and its affiliates and employees may trade securities of Versum, Entegris and certain of their respective affiliates for their own accounts and for the accounts of their customers, may at any time hold a long or short position in such securities, and may also trade and hold securities on behalf of Versum, Entegris and certain of their respective affiliates. The issuance of Lazard's opinion was approved by the opinion committee of Lazard.

Lazard prepared these analyses solely for purposes of, and the analyses were delivered to the Versum board of directors in connection with, the provision of its opinion to the Versum board of directors as to the fairness from a financial point of view of the exchange ratio to Versum stockholders (other than holders of Versum excluded shares). Lazard did not recommend any specific exchange ratio to the Versum board or directors or that any given exchange ratio constituted the only appropriate exchange ratio for the merger. Lazard's opinion and analyses were only one of many factors taken into consideration by the Versum board of directors in its evaluation of the merger. Consequently, the analyses described above should not be viewed as determinative of the views of the Versum board of directors or Versum's management with respect to the exchange ratio provided for in the merger or as to whether the Versum board of directors would have been willing to determine that a different exchange ratio or consideration was fair.

Lazard is an internationally recognized investment banking firm providing a full range of financial advisory and other services. Lazard was selected to act as investment banker to Versum because of its qualifications, expertise and reputation in investment banking and mergers and acquisitions generally and in the chemicals industry specifically, as well as its familiarity with the business of Versum.

Entegris Unaudited Financial Projections

Other than quarterly financial guidance provided to investors, which may be updated from time to time, Entegris does not as a matter of course make other public projections as to future sales, earnings, or other results, and forecasts for extended periods of time are of particular concern to Entegris due to the unpredictability of the underlying assumptions and estimates. However, as part of Entegris' annual three-year strategic planning process completed in October 2018 and its 2019 annual operating planning process completed in December 2018, Entegris management prepared certain unaudited prospective financial information for fiscal years 2019 through 2021 for its board of directors, Morgan Stanley, Lazard and Versum, and Morgan Stanley prepared, based on discussions with and under the guidance of Entegris management, extrapolations thereto, which were not made available to Lazard and Versum, for fiscal years 2022 through 2023, which are referred to collectively as the financial projections by Entegris. The financial projections by Entegris were prepared treating Entegris on a stand-alone basis, without giving effect to the merger including the impact of negotiating or executing the merger, the expenses that may be incurred in connection

with consummating the merger, the potential synergies that may be achieved by the combined company as a result of the merger, the effect of any business or strategic decision or action that has been or will be taken as a result of the merger agreement having been executed, or the effect of any business or strategic decisions or actions which would likely have been taken if the merger

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agreement had not been executed but which were instead altered, accelerated, postponed or not taken in anticipation of the merger. In January 2019, Entegris management also independently and collaboratively prepared with Versum's management certain estimates of annual cost synergies expected to be realized following the closing, which are referred to as the estimated synergies. The estimated synergies are not reflected in the financial projections by Entegris or the financial projections by Versum, but are summarized in the section entitled **Certain Estimated Synergies** beginning on page 121.

The accompanying financial projections by Entegris (including the estimated synergies) were not prepared with a view toward public disclosure or with a view toward compliance with the published guidelines established by the SEC or the American Institute of Certified Public Accountants for preparation or presentation of prospective financial information, or GAAP, but, in the view of Entegris management, were prepared on a reasonable basis, reflected the best available estimates and judgments at the time of preparation, and presented as of the time of preparation, to the best of management's knowledge and belief, the expected course of action and the expected future financial performance of Entegris. However, this information is not fact and should not be relied upon as being necessarily indicative of future results, and readers of this joint proxy statement/prospectus are cautioned not to place undue reliance on the financial projections by Entegris or the estimated synergies. Although Entegris management believes there is a reasonable basis for the financial projections by Entegris and the estimated synergies, Entegris cautions stockholders that future results could be materially different from the financial projections by Entegris and the estimated synergies. This summary of the financial projections by Entegris and the estimated synergies is not being included in this joint proxy statement/prospectus to influence your decision whether to vote for the Entegris merger agreement proposal, but because these financial projections by Entegris and the estimated synergies were shared between Entegris and Versum and provided to Entegris and Versum's respective financial advisors and boards of directors for purposes of considering and evaluating the merger and the merger agreement. Entegris independent registered public accounting firm has not audited, reviewed, examined, compiled nor applied agreed-upon procedures with respect to the financial projections by Entegris and, accordingly, does not express an opinion or any other form of assurance with respect thereto.

The financial projections by Entegris and the estimated synergies are subject to estimates and assumptions in many respects and, as a result, subject to interpretation. While presented with numerical specificity, the financial projections by Entegris and the estimated synergies are based upon a variety of estimates and assumptions that are inherently uncertain, though considered reasonable by Entegris management as of the date of their preparation. These estimates and assumptions may prove to be inaccurate for any number of reasons, including general economic conditions, semiconductor industry capital spending and unit production trends, competition, and the risks discussed in this joint proxy statement/prospectus under the sections entitled **Cautionary Statement Regarding Forward-Looking Statements** and **Risk Factors** beginning on pages 41 and 43, respectively. See also **Where You Can Find More Information** beginning on page 213 of this joint proxy statement/prospectus. The financial projections by Entegris and the estimated synergies also reflect assumptions as to certain business decisions that are subject to change. Because the financial projections by Entegris were developed for Entegris on a stand-alone basis without giving effect to the merger, they do not reflect any divestitures or other restrictions that may be imposed in connection with the receipt of any necessary governmental or regulatory approvals, any synergies that may be realized as a result of the merger or any changes to Entegris operations or strategy that may be implemented after completion of the merger. There can be no assurance that the financial projections by Entegris or the estimated synergies will be realized, and actual results may differ materially from those shown. Generally, the further out the period to which financial projections by Entegris and the estimated synergies relate, the less predictable and more unreliable the information becomes.

The financial projections by Entegris contain certain non-GAAP financial measures that Entegris believes are helpful in understanding its past financial performance and future results. Entegris management regularly uses a variety of

financial measures that are not in accordance with GAAP, including Adjusted EBITDA (defined as net income excluding certain items which Entegris does not believe to be indicative of underlying business trends, including income tax expense, interest expense, interest income, other expense (income), net, integration

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and transaction related costs, amortization of intangible assets and depreciation). The non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP measures. While Entegris believes that these non-GAAP financial measures provide meaningful information to help investors understand the operating results and to analyze Entegris' financial and business trends on a period-to-period basis, there are limitations associated with the use of these non-GAAP financial measures. These non-GAAP financial measures are not prepared in accordance with GAAP, are not reported by all of Entegris' competitors (including Versum) and may not be directly comparable to similarly titled measures of Entegris' competitors due to potential differences in the exact method of calculation.

Neither Entegris nor Versum has provided reconciliations of the non-GAAP financial measures included in these projections to the comparable GAAP measure due to no reasonably accessible or reliable comparable GAAP measures for these measures and the inherent difficulty in forecasting and quantifying the measures that are necessary for such reconciliation.

None of Entegris, Versum, the combined company or their respective affiliates, advisors, officers, directors or other representatives can provide any assurance that actual results will not differ from the financial projections by Versum or the estimated synergies, and none of them undertakes any obligation to update, or otherwise revise or reconcile, the financial projections by Entegris or the estimated synergies to reflect circumstances existing after the date the financial projections by Entegris or the estimated synergies were generated or to reflect the occurrence of future events even in the event that any or all of the assumptions underlying financial projections by Entegris or the estimated synergies, as applicable, are shown to be in error. Except as required by applicable securities laws, Entegris does not intend to make publicly available any update or other revision to the financial projections by Entegris or the estimated synergies, even in the event that any or all assumptions are shown to be in error. Entegris has made publicly available its actual results of operations for the year ended December 31, 2018 on Entegris' Annual Report on Form 10-K filed with the SEC on February 11, 2019. None of Entegris or its affiliates, advisors, officers, directors or other representatives has made or makes any representation to any Entegris stockholder or other person regarding Entegris' ultimate performance compared to the information contained in the financial projections by Entegris, the estimated synergies or that forecasted results will be achieved. Entegris has made no representation to Versum, in the merger agreement or otherwise, concerning the financial projections by Entegris or the estimated synergies.

Summary of the Financial Projections by Entegris

The following table presents certain unaudited prospective financial information of Entegris prepared by Entegris management for fiscal years 2019 through 2021, and extrapolated by Morgan Stanley, based on discussions with and guidance from Entegris management, for fiscal years 2022 through 2023, and approved for Morgan Stanley's use by Entegris management.

(\$ in millions)	Fiscal Year Ended December 31,				
	2019E	2020E	2021E	2022E	2023E
Sales	\$ 1,698	\$ 1,870	\$ 2,034	\$ 2,115	\$ 2,200
Adjusted EBITDA ⁽¹⁾	\$ 496	\$ 567	\$ 635	\$ 661	\$ 687
Adjusted EBITA ⁽²⁾	\$ 427	\$ 486	\$ 546	\$ 568	\$ 590

(1) Adjusted EBITDA, a non-GAAP term, is defined by Entegris as net income excluding certain items which Entegris does not believe to be indicative of underlying business trends, including income tax expense,

interest expense, interest income, other expense (income), net, integration and transaction related costs, amortization of intangible assets and depreciation.

- (2) Adjusted EBITA, a non-GAAP term, is defined by Entegris as net income excluding certain items which Entegris does not believe to be indicative of underlying business trends, including income tax expense, interest expense, interest income, other expense (income), net, integration and transaction related costs and amortization of intangible assets.

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In addition (as described in the section entitled **Versum Unaudited Financial Projections** beginning on page 118), Versum management prepared certain unaudited prospective financial information for fiscal years 2019 through 2021 for its board of directors, Lazard, Morgan Stanley and Entegris, which Entegris adjusted to primarily reflect slightly more conservative assumptions regarding semiconductor industry capital spending, and Morgan Stanley extrapolated, based on discussions with and guidance from Entegris management, for fiscal years 2022 through 2023, which information was approved for Morgan Stanley's use by Entegris management, and is presented, as so adjusted, in the following table (and is referred to as the Versum growth sensitivity case in the section entitled **Opinion of Entegris Financial Advisor** beginning on page 96).

(\$ in millions)	Fiscal Year Ended September 30,				
	2019E	2020E	2021E	2022E	2023E
Sales	\$ 1,426	\$ 1,532	\$ 1,699	\$ 1,801	\$ 1,873
Adjusted EBITDA ⁽¹⁾	\$ 482	\$ 516	\$ 592	\$ 627	\$ 653
Adjusted EBIT ⁽²⁾	\$ 420	\$ 457	\$ 528	\$ 559	\$ 582

- (1) Adjusted EBITDA, a non-GAAP term, is net income excluding certain disclosed items which Versum does not believe to be indicative of underlying business trends, including interest expense, the write-off of financing costs, non-service components of net periodic pension cost, income tax provision, depreciation and amortization expense, non-controlling interests, and business separation, restructuring and cost reduction actions.
- (2) Adjusted EBIT, a non-GAAP term, is net income excluding certain disclosed items which Versum does not believe to be indicative of underlying business trends, including interest expense, the write-off of financing costs, non-service components of net periodic pension cost, income tax provision, non-controlling interests, and business separation, restructuring and cost reduction actions.

Versum Unaudited Financial Projections

Versum has historically prepared and provided public guidance as to its projected financial and operational results for its then-current fiscal year in its press releases announcing its financial results for the then-current quarter or year, as applicable. Other than the financial guidance discussed above, Versum does not as a matter of course make other public projections as to future sales, earnings, or other results, and forecasts for extended periods of time are of particular concern to Versum due to the unpredictability of the underlying assumptions and estimates. However, in connection with the discussions regarding the proposed merger, Versum management prepared certain unaudited prospective financial information for fiscal years 2019 through 2021 for its board of directors, Lazard, Morgan Stanley and Entegris, and Lazard prepared, based on discussions with and under the guidance of Versum management, extrapolations thereto, which were not made available to Morgan Stanley and Entegris, for fiscal years 2022 through 2023, which are referred to collectively as the financial projections by Versum. The financial projections by Versum were prepared treating Versum on a stand-alone basis, without giving effect to the merger including the impact of negotiating or executing the merger, the expenses that may be incurred in connection with consummating the merger, the potential synergies that may be achieved by the combined company as a result of the merger, the effect of any business or strategic decision or action that has been or will be taken as a result of the merger agreement having been executed, or the effect of any business or strategic decisions or actions which would likely have been taken if the merger agreement had not been executed but which were instead altered, accelerated, postponed or not taken in anticipation of the merger. In January 2019, Versum's management also independently and collaboratively prepared with Entegris management the estimated synergies. The estimated synergies are not reflected in the financial projections by Versum or the financial projections by Entegris, but are summarized in the section entitled **Certain Estimated Synergies** beginning on page 121.

The accompanying financial projections by Versum (including the estimated synergies) were not prepared with a view toward public disclosure or with a view toward compliance with the published guidelines established by the SEC or the American Institute of Certified Public Accountants for preparation or presentation of

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prospective financial information, or GAAP, but, in the view of Versum's management, were prepared on a reasonable basis, reflected the best available estimates and judgments at the time of preparation, and presented as of the time of preparation, to the best of management's knowledge and belief, the expected course of action and the expected future financial performance of Versum. However, this information is not fact and should not be relied upon as being necessarily indicative of future results, and readers of this joint proxy statement/prospectus are cautioned not to place undue reliance on the financial projections by Versum or the estimated synergies. Although Versum's management believes there is a reasonable basis for the financial projections by Versum and the estimated synergies, Versum cautions stockholders that future results could be materially different from the financial projections by Versum and the estimated synergies. This summary of the financial projections by Versum and the estimated synergies is not being included in this joint proxy statement/prospectus to influence your decision whether to vote for the Versum merger agreement proposal, but because these financial projections by Versum and the estimated synergies were shared between Versum and Entegris and provided to Versum's and Entegris' respective financial advisors and boards of directors for purposes of considering and evaluating the merger and the merger agreement. Versum's independent registered public accounting firm has not audited, reviewed, examined, compiled nor applied agreed-upon procedures with respect to the financial projections by Versum and, accordingly, does not express an opinion or any other form of assurance with respect thereto.

The financial projections by Versum and the estimated synergies are subject to estimates and assumptions in many respects and, as a result, subject to interpretation. While presented with numerical specificity, the financial projections by Versum and the estimated synergies are based upon a variety of estimates and assumptions that are inherently uncertain, though considered reasonable by Versum's management as of the date of their preparation. These estimates and assumptions may prove to be inaccurate for any number of reasons, including general economic conditions, competition, and the risks discussed in this joint proxy statement/prospectus under the sections entitled **Cautionary Statement Regarding Forward-Looking Statements** and **Risk Factors** beginning on pages 41 and 43, respectively. See also **Where You Can Find More Information** beginning on page 213 of this joint proxy statement/prospectus. The financial projections by Versum and the estimated synergies also reflect assumptions as to certain business decisions that are subject to change. Because the financial projections by Versum were developed for Versum on a stand-alone basis without giving effect to the merger, they do not reflect any divestitures or other restrictions that may be imposed in connection with the receipt of any necessary governmental or regulatory approvals, any synergies that may be realized as a result of the merger or any changes to Versum's operations or strategy that may be implemented after completion of the merger. There can be no assurance that the financial projections by Versum or the estimated synergies will be realized, and actual results may differ materially from those shown. Generally, the further out the period to which financial projections by Versum and the estimated synergies relate, the less predictable and more unreliable the information becomes.

The financial projections by Versum contain certain non-GAAP financial measures that Versum believes are helpful in understanding its past financial performance and future results. Versum management regularly uses a variety of financial measures that are not in accordance with GAAP, including Adjusted EBITDA (defined as net income excluding certain items which Versum does not believe to be indicative of underlying business trends, including interest expense, the write-off of financing costs, non-service components of net periodic pension cost, income tax provision, depreciation and amortization expense, non-controlling interests, and business separation, restructuring and cost reduction actions) for forecasting, budgeting and measuring operating performance. The non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP measures. While Versum believes that these non-GAAP financial measures provide meaningful information to help investors understand the operating results and to analyze Versum's financial and business trends on a period-to-period basis, there are limitations associated with the use of these non-GAAP financial measures. These non-GAAP financial measures are not prepared in accordance with GAAP, are not reported by all of Versum's competitors (including Entegris) and may not be directly comparable to similarly titled measures of Versum's competitors due to potential differences in the

exact method of calculation.

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Neither Versum nor Entegris has provided reconciliations of the non-GAAP financial measures included in these projections to the comparable GAAP measure due to no reasonably accessible or reliable comparable GAAP measures for these measures and the inherent difficulty in forecasting and quantifying the measures that are necessary for such reconciliation.

None of Versum, Entegris, the combined company or their respective affiliates, advisors, officers, directors or other representatives can provide any assurance that actual results will not differ from the financial projections by Versum or the estimated synergies, and none of them undertakes any obligation to update, or otherwise revise or reconcile, the financial projections by Versum or the estimated synergies to reflect circumstances existing after the date the financial projections by Versum or the estimated synergies were generated or to reflect the occurrence of future events even in the event that any or all of the assumptions underlying financial projections by Versum or the estimated synergies, as applicable, are shown to be in error. Except as required by applicable securities laws, Versum does not intend to make publicly available any update or other revision to the financial projections by Versum or the estimated synergies, even in the event that any or all assumptions are shown to be in error. Versum has made publicly available its actual results of operations for the year ended September 30, 2018 on Versum's Annual Report on Form 10-K filed with the SEC on November 21, 2018 and for the quarterly period ended December 31, 2018 on Versum's Quarterly Report on Form 10-Q filed with the SEC on February 7, 2019. None of Versum or its affiliates, advisors, officers, directors or other representatives has made or makes any representation to any Versum stockholder or other person regarding Versum's ultimate performance compared to the information contained in the financial projections by Versum, the estimated synergies or that forecasted results will be achieved. Versum has made no representation to Entegris, in the merger agreement or otherwise, concerning the financial projections by Versum or the estimated synergies.

Summary of the Financial Projections by Versum

The following table presents certain unaudited prospective financial information of Versum prepared by Versum management for fiscal years 2019 through 2021, and extrapolated by Lazard, based on discussions with and guidance from Versum management, for fiscal years 2022 through 2023, and approved for Lazard's use by Versum management.

(\$ in millions)	Fiscal Year Ended September 30,				
	2019E	2020E	2021E	2022E	2023E
Sales	\$ 1,470	\$ 1,647	\$ 1,812	\$ 1,921	\$ 2,017
Adjusted EBITDA ⁽¹⁾	\$ 495	\$ 554	\$ 630	\$ 668	\$ 701
Adjusted EBIT ⁽²⁾	\$ 433	\$ 492	\$ 563	\$ 596	\$ 626

- (1) Adjusted EBITDA, a non-GAAP term, is net income excluding certain disclosed items which Versum does not believe to be indicative of underlying business trends, including interest expense, the write-off of financing costs, non-service components of net periodic pension cost, income tax provision, depreciation and amortization expense, non-controlling interests, and business separation, restructuring and cost reduction actions.
- (2) Adjusted EBIT, a non-GAAP term, is net income excluding certain disclosed items which Versum does not believe to be indicative of underlying business trends, including interest expense, the write-off of financing costs, non-service components of net periodic pension cost, income tax provision, non-controlling interests, and business separation, restructuring and cost reduction actions.

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The following table presents certain unaudited prospective financial information of Entegris prepared by Entegris management for fiscal years 2019 through 2021 and provided to Versum, and extrapolated by Lazard, based on discussions with and guidance from Versum management, for fiscal years 2022 through 2023, and approved for Lazard's use by Versum management.

(\$ in millions)	Fiscal Year Ended December 31,				
	2019E	2020E	2021E	2022E	2023E
Sales	\$ 1,698	\$ 1,870	\$ 2,034	\$ 2,156	\$ 2,264
Adjusted EBITDA ⁽¹⁾	\$ 496	\$ 567	\$ 635	\$ 673	\$ 707
Adjusted EBITA ⁽²⁾	\$ 427	\$ 486	\$ 546	\$ 578	\$ 607

- (1) Adjusted EBITDA, a non-GAAP term, is defined by Entegris as net income excluding certain items which Entegris does not believe to be indicative of underlying business trends, including income tax expense, interest expense, interest income, other expense (income), net, integration and transaction related costs, amortization of intangible assets and depreciation.
- (2) Adjusted EBITA, a non-GAAP term, is defined by Entegris as net income excluding certain items which Entegris does not believe to be indicative of underlying business trends, including income tax expense, interest expense, interest income, other expense (income), net, integration and transaction related costs and amortization of intangible assets.

Certain Estimated Synergies

In January 2019, Versum's management and Entegris' management both independently and collaboratively prepared and provided to their respective boards of directors and to their respective financial advisors certain estimates of annual cost synergies estimated to be potentially realizable by the combined company within 12 months after closing. The initial estimated synergies included approximately \$75 million of annual gross pre-tax cost synergies estimated to be potentially realizable within 12 months after closing. The estimated synergies assumed that the expected benefits of the merger would be realized, including that no restrictions, terms or other conditions would be imposed in connection with the receipt of any necessary governmental, regulatory or other approvals or consents in connection with the consummation of the merger. In addition, the analysis for estimated synergies assumes an aggregate pre-tax cash investment of approximately \$60-75 million (excluding transaction related costs and change in control related payments that may be payable) to achieve the estimated synergies, with cost savings to come primarily from general and administrative expenses and supply chain (manufacturing, procurement and logistics), commercial operations and research and development rationalization.

On March 8, 2019, Entegris and Versum issued an open letter to Entegris stockholders and Versum stockholders indicating that the integration teams of both companies had worked closely over the prior month, and as a result of those detailed efforts, the combined company now expects to achieve more than \$125 million in cost synergies from general and administrative expenses, such as facilities optimization, administrative functions and rationalization of public company costs, as well as efficiencies in commercial operations, manufacturing, logistics and procurement. The open letter also indicated that, given the strength of the two companies, the enhanced offerings and the positive receptivity from customers, over the next three years the combined company also expects revenue synergies to contribute at least \$50 million of additional EBITDA annually, which will result initially from cross-selling across major customers and geographies and eventually through the opportunity to develop co-optimized products and solutions. The open letter further stated that the merger is expected to generate tax synergies reflecting the combined company's ability to benefit from Entegris' more efficient tax structure.

See the sections above entitled **Entegris Unaudited Financial Projections** and **Versum Unaudited Financial Projections** beginning on pages 115 and 118, respectively, for further information regarding the uncertainties underlying the estimated synergies as well as the sections entitled **Cautionary Statement Regarding Forward-Looking Statements** and **Risk Factors** beginning on pages 41 and 43,

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respectively, for further information regarding the uncertainties and factors associated with realizing the synergies in connection with the merger.

Closing and Effective Time of the Merger

The closing of the merger will take place on the third business day following the day on which the last to be satisfied or (to the extent permissible) waived of the conditions for completion of the merger set forth in the merger agreement (other than those conditions that by their nature must be satisfied or waived at the closing (so long as such conditions are reasonably capable of being satisfied), but subject to the satisfaction or waiver of those conditions) is satisfied or (to the extent permissible) waived in accordance with the merger agreement or on such other date as Versum and Entegris may mutually agree in writing. Subject to the satisfaction or waiver of the conditions to the closing described in the section entitled **The Merger Agreement Conditions to the Completion of the Merger** beginning on page 152, including the adoption of the merger agreement by Versum stockholders at the Versum special meeting and adoption of the merger agreement by Entegris stockholders at the Entegris special meeting, it is anticipated that the merger will close in the second half of 2019. However, neither Entegris nor Versum can predict the actual date on which the merger will be completed, or if the completion will occur at all, because completion is subject to conditions and factors outside the control of both companies. It is possible that factors outside the control of both companies could result in the merger being completed at a different time, or not at all.

As soon as practicable following, and on the date of, the closing, Entegris and Versum will cause a certificate of merger relating to the merger, which is referred to as the certificate of merger, to be executed, acknowledged and filed with the Secretary of State of the State of Delaware as provided in Section 251 of the DGCL. The merger will become effective at the time when the certificate of merger has been duly filed with and accepted by the Secretary of State of the State of Delaware or at such later date and time as may be agreed by Entegris and Versum in writing and specified in the certificate of merger.

Regulatory Approvals

General

Entegris and Versum have agreed to cooperate with each other and use, and to cause their respective subsidiaries to use, their respective reasonable best efforts to take or cause to be taken all actions, and do or cause to be done all things reasonably necessary, proper or advisable on its part under the merger agreement and applicable law to cause the conditions to closing to be satisfied as promptly as reasonably practicable and advisable (and in any event no later than the outside date) and to consummate and make effective the transactions contemplated by the merger agreement as soon as reasonably practicable, including preparing and filing as promptly as reasonably practicable and advisable all documentation to effect all necessary notices, reports and other filings and to obtain as promptly as reasonably practicable all consents necessary or advisable to be obtained from any third party or any governmental entity in order to consummate such transactions.

Requisite Regulatory Approvals

The completion of the merger is subject to the receipt of antitrust clearance in the United States and in China, Germany, Japan, South Korea and Taiwan, which are referred to as the requisite regulatory approvals.

With respect to the United States, under the HSR Act, the merger may not be completed until notification and report forms have been filed with the FTC and the DOJ and the applicable waiting period has expired or been terminated. A transaction requiring notification under the HSR Act may not be completed until the expiration of a 30-calendar-day

waiting period following the parties' filing of their respective HSR notifications or the early termination of that waiting period. Entegris and Versum each filed an HSR notification with the FTC and the DOJ on February 6, 2019 and the waiting period expired at 11:59 p.m. Eastern Time on March 8, 2019. With respect to Germany, clearance was received on March 19, 2019.

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At any time before or after consummation of the merger, notwithstanding the expiration or termination of the applicable waiting period under the HSR Act, the DOJ or the FTC, or any state, could take such action under the antitrust laws as it deems necessary or desirable in the public interest, including seeking to enjoin the completion of the merger, seeking divestiture of substantial assets of the parties or requiring the parties to license, or hold separate, assets or terminate existing relationships and contractual rights. At any time before or after the completion of the merger, and notwithstanding the expiration or termination of the applicable waiting period under the HSR Act, any state could take such action under the antitrust laws as it deems necessary or desirable in the public interest. Such action could include seeking to enjoin the completion of the merger or seeking divestiture of substantial assets of the parties. Private parties may also seek to take legal action under the antitrust laws under certain circumstances.

The merger is also subject to clearance or approval by antitrust authorities in certain other jurisdictions. The merger cannot be completed until Entegris and Versum obtain clearance to consummate the merger or applicable waiting periods have expired or been terminated in each applicable jurisdiction. Entegris and Versum, in consultation and cooperation with each other, will file notifications, as required with antitrust authorities in certain other jurisdictions, as promptly as practicable after the date of the merger agreement. The relevant antitrust authorities could take such actions under the applicable antitrust laws as they deem necessary or desirable, including seeking divestiture of substantial assets of the parties or requiring the parties to license, or hold separate, assets or terminate existing relationships and contractual rights. There is no assurance that Entegris and Versum will obtain all required antitrust clearances or approvals on a timely basis, if at all.

Each of Entegris and Versum is required under the merger agreement to defend through litigation (excluding any appeals) on the merits of any claim asserted in any court, agency or other proceeding by any person or entity (including any governmental antitrust entity) seeking to delay, restrain, prevent, enjoin or otherwise prohibit consummation of the merger. In addition, each of Entegris and Versum is required under the merger agreement to take, effect or agree to any regulatory remedy (as defined in the section entitled **The Merger Agreement Cooperation; Efforts to Consummate** beginning on page 145) if such regulatory remedy is reasonably necessary, proper or advisable to permit the consummation of the merger and other transactions contemplated by the merger agreement, although no such regulatory remedy is required if it is not conditioned upon the closing of the merger or if such regulatory remedy, individually or in the aggregate with any other regulatory remedy, would reasonably be expected to have a material adverse effect on the business, operations, financial condition or results of operations of Versum and its subsidiaries, taken as a whole, Entegris and its subsidiaries, taken as a whole, or the combined company and its subsidiaries, not taking into account any proceeds received or expected to be received from effecting any such action. For a description of the parties' obligations with respect to regulatory approvals related to the merger, see the section entitled **The Merger Agreement Cooperation; Efforts to Consummate** beginning on page 145.

Ownership of the Combined Company After the Merger

As of the date of this joint proxy statement/prospectus, based on the exchange ratio of 1.120 and the estimated number of shares of common stock of Entegris and Versum that will be outstanding immediately prior to the completion of the merger, Entegris and Versum estimate that holders of shares of Entegris common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 52.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger, and holders of shares of Versum common stock as of immediately prior to the completion of the merger will hold, in the aggregate, approximately 47.5% of the issued and outstanding shares of common stock of the combined company (based on fully diluted shares outstanding of the combined company including exercisable options only) immediately following the completion of the merger.

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Governance of the Combined Company

Certificate of Incorporation

Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, at the effective time, the certificate of incorporation of Entegris, as in effect immediately prior to the effective time, will be amended as provided in the merger agreement, and as so amended will be the certificate of incorporation of the combined company, until thereafter amended as provided therein or by applicable law.

The amended and restated certificate of incorporation of Entegris implements certain governance matters for the combined company following completion of the merger. The full text of the proposed amended and restated certificate of incorporation is attached to this joint proxy statement/prospectus as Annex B.

Board of Directors

As of the effective time, the board of directors of the combined company will consist of nine directors, who will be determined prior to closing by mutual agreement of the parties, including:

the four Entegris designees;

the four Versum designees (including the chairman of the board of directors of Versum as of immediately prior to the effective time); and

the Entegris CEO.

The parties intend that the combined company board of directors represent an appropriate mix of relevant experience, qualifications and attributes. Each of the Entegris designees and the Versum designees will meet the independence standards of NASDAQ or the NYSE as may be applicable with respect to the combined company as of the effective time. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, any action by the board of directors to change the chief executive officer or the chairman of the board of directors of the combined company will require approval of at least 75% of the then-serving directors.

As of the date of this joint proxy statement/prospectus, other than as set forth above, the individuals to serve on the board of directors of the combined company at the effective time have not been determined.

Chairman of the Board of Directors

The chairman of the board of directors of Versum as of immediately prior to the effective time will serve as the chairman of the board of directors of the combined company. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, the removal of the chairman of the board of directors of the combined company will require the approval of at least 75% of the then-serving directors.

Committees of the Board of Directors

As of the effective time, the board of directors of the combined company will include three committees: the audit and finance committee, the compensation committee and the nominating and governance committee.

Chief Executive Officer

As of the effective time, the Entegris CEO will serve as the chief executive officer of the combined company. Subject to adoption of the amended and restated certificate of incorporation of Entegris by Entegris stockholders, from the closing until the third anniversary of the closing, the removal of the chief executive officer of the combined company will require the approval of at least 75% of the then-serving directors.

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Name

The name of the combined company will be Entegris, Inc. as of the effective time.

Headquarters

As of the effective time, the headquarters of the combined company will be located in Billerica, Massachusetts.

U.S. Federal Securities Law Consequences

Pending the effectiveness of the registration statement on Form S-4, of which this joint proxy statement/prospectus forms a part, shares of Entegris common stock issued in the merger will not be subject to any restrictions on transfer arising under the Securities Act or the Exchange Act, except for shares of Entegris common stock issued to any Versum stockholder who may be deemed an affiliate of Entegris after the completion of the merger. This joint proxy statement/prospectus does not cover resales of Entegris common stock received by any person upon the completion of the merger, and no person is authorized to make any use of this joint proxy statement/prospectus in connection with any resale of Entegris common stock.

Accounting Treatment

Entegris and Versum prepare their respective financial statements in accordance with GAAP. Although the parties have structured the merger as a merger of equals, GAAP requires that one party to the merger be identified as the acquirer. The merger will be accounted for using the acquisition method of accounting, and Entegris will be treated as the accounting acquirer. In identifying Entegris as the acquiring entity for accounting purposes, Entegris and Versum took into account a number of factors as of the date of this joint proxy statement/prospectus, including the relative voting rights of all equity instruments in the combined company and the intended corporate governance structure of the combined company. No single factor was the sole determinant in the overall conclusion that Entegris is the acquirer for accounting purposes; rather all factors were considered in arriving at such conclusion.

Exchange of Shares

Prior to the effective time, Entegris will appoint an exchange agent (with Versum's prior approval) to handle the exchange of shares of Versum common stock for Entegris common stock. Each share of Versum common stock (other than Versum excluded shares) will be converted into the right to receive 1.120 shares of Entegris common stock, together with cash in lieu of fractional shares, if any, and unpaid dividends and distributions, if any, in accordance with the merger agreement.

After the effective time, shares of Versum common stock will be cancelled and will cease to exist and each certificate that previously represented shares of Versum common stock will represent only the right to receive Entegris common stock and cash in lieu of fractional shares, if any, and unpaid dividends and distributions, if any, in accordance with the merger agreement.

As soon as reasonably practicable (but in any event within three business days) after the effective time, the exchange agent will mail each holder of record of a certificate that immediately prior to the effective time represented outstanding shares of Versum common stock: (a) a notice advising such holders of the effectiveness of the merger, (b) a letter of transmittal specifying that delivery will be effected, and risk of loss and title to a certificate will pass, only upon the surrender of the certificate to the exchange agent and (c) instructions for surrendering the applicable certificate in exchange for shares of Entegris common stock. After the completion of the merger, shares of Versum

common stock represented by any such certificate will be exchanged for shares of Entegris common stock in book-entry form and cash will be paid in lieu of fractional shares, if any, and unpaid dividends or distributions, if any, in accordance with the merger agreement.

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Holders of shares of Versum common stock in book-entry form will not be required to take any specific actions to exchange shares Versum common stock for shares of Entegris common stock. After the completion of the merger, shares of Versum common stock held in book-entry form will be automatically exchanged for shares of Entegris common stock in book-entry form and cash will be paid in lieu of fractional shares, if any, and unpaid dividends or distributions, if any, in accordance with the merger agreement.

More information can be found in the section entitled **The Merger Agreement Exchange of Shares** beginning on page 129.

Market Listing

The shares of Entegris common stock to be issued in the merger are expected to be listed for trading on NASDAQ or the NYSE under the symbol ENTG. Stockholders will be informed in conjunction with the closing on which exchange the shares will trade.

Delisting and Deregistration of Versum Common Stock

If the merger is completed, Versum common stock will be delisted from the NYSE and deregistered under the Exchange Act, and Versum will no longer be required to file periodic reports with the SEC with respect to Versum common stock.

Versum has agreed to cooperate with Entegris and use its reasonable best efforts to take, or cause to be taken, all actions, and do or cause to be done all things, reasonably necessary, proper or advisable on its part under applicable laws and rules and policies of the NYSE to enable the delisting by the combined company of the shares of Versum common stock from the NYSE and the deregistration of the shares of Versum common stock under the Exchange Act as promptly as practicable after the effective time.

Litigation Related to the Merger

Following the public announcement of the merger, purported stockholders of Versum have filed three putative class action lawsuits and one individual lawsuit in the United States District Court for the District of Delaware against Versum and the members of the Versum board of directors (and, in the case of one of the putative class actions, also against Entegris): Price v. Versum Materials, Inc. et al., 1:19-cv-00427 (filed on March 1, 2019), Wang v. Versum Materials, Inc. et al., 1:19-cv-00460 (filed on March 5, 2019), Wheby v. Versum Materials, Inc. et al., 1:19-cv-00472 (filed on March 6, 2019), and Robert v. Versum Materials, Inc. et al., 1:19-cv-00511 (filed on March 14, 2019). The lawsuits contain similar allegations contending, among other things, that the registration statement on Form S-4, of which this joint proxy statement/prospectus forms a part, misstates or fails to disclose certain allegedly material information in violation of federal securities laws. The individual lawsuit (Wang) additionally alleges that the members of the Versum board of directors breached their fiduciary duties in connection with the Merck proposal. The lawsuits seek injunctive relief enjoining the merger, damages and costs, and other remedies.

Additionally, purported stockholders of Versum have filed two putative class action lawsuits in the Court of Chancery of the State of Delaware against Versum, the members of the Versum board of directors, and Broadridge Corporate Issuer Solutions, Inc. in its capacity as the rights agent for the Versum rights plan: Plumbers and Steamfitters Local 60 Pension Trust v. Versum Materials, Inc. et al., 2019-0190-JTL (filed on March 8, 2019) and City of Providence v. Versum Materials, Inc. et al., 2019-0206-JTL (filed on March 14, 2019). The lawsuits contain similar allegations contending, among other things, that the members of the Versum board of directors breached their fiduciary duties in connection with the Merck proposal and in instituting the Versum rights plan. One lawsuit (City of Providence)

additionally contains breach of fiduciary duty allegations arising out of alleged negotiation by members of the Versum board of directors with Entegris without board authorization and without full disclosure to the board. The lawsuits seek relief declaring that the Versum rights plan is unenforceable or enjoining its use, damages and costs, and other remedies. One lawsuit (City of Providence) additionally seeks to enjoin the merger. On March 19, 2019, the Delaware Chancery Court entered an order consolidating the two lawsuits under the caption In re Versum Materials, Inc. Stockholder Litigation, Consolidated C.A. No. 2019-0206-JTL. The complaint previously filed by the City of Providence was designated the operative complaint.

Table of Contents**THE MERGER AGREEMENT**

*The following description sets forth the principal terms of the merger agreement, which is attached as **Annex A** and is incorporated by reference into this joint proxy statement/prospectus. The rights and obligations of the parties are governed by the express terms and conditions of the merger agreement and not by this description, which is summary by nature. This description does not purport to be complete and is qualified in its entirety by reference to the complete text of the merger agreement. You are encouraged to read the merger agreement carefully and in its entirety, as well as this joint proxy statement/prospectus and any documents incorporated by reference herein, before making any decisions regarding any of the proposals described in this joint proxy statement/prospectus. This section is intended to provide you with information regarding the terms of the merger agreement. Accordingly, the representations, warranties, covenants and other agreements in the merger agreement should not be read alone, and you should read the information provided elsewhere in this joint proxy statement/prospectus and in the public filings Entegris and Versum make with the SEC, as described in the section entitled **Where You Can Find More Information** beginning on page 213.*

Explanatory Note Regarding the Merger Agreement

The merger agreement and this summary of terms are included to provide you with information regarding the terms of the merger agreement. Factual disclosures about Entegris and Versum contained in this joint proxy statement/prospectus or in the public reports of Entegris and Versum filed with the SEC may supplement, update or modify the factual disclosures about Entegris and Versum contained in the merger agreement. The representations, warranties and covenants made in the merger agreement by Entegris and Versum were qualified and subject to important limitations agreed to by Entegris and Versum in connection with negotiating the terms of the merger agreement. In particular, in your review of the representations and warranties contained in the merger agreement and described in this summary, it is important to bear in mind that the representations and warranties were negotiated with the principal purpose of establishing circumstances in which a party to the merger agreement may have the right not to consummate the merger if the representations and warranties of the other party prove to be untrue due to a change in circumstance or otherwise, and allocating risk between the parties to the merger agreement, and were not intended by the parties to the merger agreement to be a characterization of the actual state of facts or condition of Entegris or Versum, except as expressly stated in the merger agreement. The representations and warranties also may be subject to a contractual standard of materiality different from that generally applicable to stockholders and reports and documents filed with the SEC and in some cases were qualified by the matters contained in the confidential disclosures that Entegris and Versum each delivered in connection with the merger agreement, which disclosures were not reflected in the merger agreement. Moreover, information concerning the subject matter of the representations and warranties, which do not purport to be accurate as of the date of this joint proxy statement/prospectus, may have changed since the date of the merger agreement and subsequent developments or new information qualifying a representation or warranty may have been included in this proxy statement or in the respective public filings made by each of Entegris or Versum with the SEC.

Additional information about Entegris and Versum may be found elsewhere in this joint proxy statement/prospectus and in the public filings Entegris and Versum make with the SEC. See the section entitled **Where You Can Find More Information** beginning on page 213.

Structure of the Merger

The merger agreement provides for the merger of Versum with and into Entegris. As a result of the merger, the separate existence of Versum will cease, and Entegris will continue its existence under the laws of the State of Delaware as the surviving corporation upon consummation of the merger.

Completion and Effectiveness of the Merger

The closing of the merger will take place on the third business day following the day on which the last to be satisfied or (to the extent permissible) waived of the conditions for completion of the merger set forth in the

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merger agreement (other than those conditions that by their nature must be satisfied or waived at the closing (so long as such conditions are reasonably capable of being satisfied), but subject to the satisfaction or waiver of those conditions) is satisfied or waived (to the extent permissible) in accordance with the merger agreement or on such other date as Versum and Entegris may mutually agree in writing.

As soon as practicable following, and on the date of, the closing, Entegris and Versum will cause the certificate of merger to be executed, acknowledged and filed with the Secretary of State of the State of Delaware as provided in Section 251 of the DGCL. The merger will become effective at the time when the certificate of merger has been duly filed with and accepted by the Secretary of State of the State of Delaware or at such later date and time as may be agreed by Entegris and Versum in writing and specified in the certificate of merger.

Entegris and Versum are working to complete the merger prior to the outside date of January 28, 2020 (subject to extension in certain circumstances to April 28, 2020 pursuant to the terms of the merger agreement). It is possible that factors outside the control of both companies could result in the merger being completed at a different time, or not at all.

Merger Consideration

At the effective time, by virtue of the merger and without any action on the part of the parties or any holder of any capital stock of Versum, each share of Versum common stock issued and outstanding immediately prior to the effective time (other than Versum excluded shares) will be converted into and become exchangeable for 1.120 shares of Entegris common stock.

The exchange ratio is fixed, which means that it will not change between now and the date of the merger, regardless of whether the market price of either Entegris common stock or Versum common stock changes. Therefore, the value of the merger consideration will depend on the market price of Entegris common stock at the effective time. The market price of Entegris common stock has fluctuated since the date of the announcement of the merger agreement and will continue to fluctuate from the date of this joint proxy statement/prospectus to the date of the special meetings, the date the merger is completed and thereafter. The market price of Entegris common stock, when received by Versum stockholders after the merger is completed, could be greater than, less than or the same as the market price of Entegris common stock on the date of this joint proxy statement/prospectus or at the time of the special meeting. Accordingly, you should obtain current market quotations for Entegris common stock and Versum common stock before deciding how to vote with respect to any of the proposals described in this joint proxy statement/prospectus. Entegris common stock is traded on NASDAQ under the symbol **ENTG** and Versum common stock is traded on the NYSE under the symbol **VSM**.

At the effective time, all excluded shares will be cancelled and will cease to exist, and no payment will be made in respect of such shares.

Treatment of Equity Awards

Treatment of Existing Entegris Equity Awards

Entegris equity awards will remain equity awards relating to shares of Entegris common stock. Entegris equity awards will continue to vest in accordance with the terms of the award agreements applicable to such Entegris equity awards. However, the Entegris board of directors (or the applicable committee thereof) may determine to treat the merger as a change in control or term of similar meaning for purposes of the Entegris compensation and benefit plans, including Entegris equity awards, which determination may result in certain double trigger benefits under such plans upon a

qualifying termination of employment subsequent to the effective time, but in no event may such determination result in the single-trigger payment of benefits under such plans upon or in connection with the merger. Entegris may amend any outstanding Entegris options and Entegris RSU award, granted prior to January 27, 2019 to provide for, and may include in Entegris options, Entegris RSU awards and Entegris PSU awards granted in fiscal year 2019, double-trigger vesting upon certain qualifying terminations of employment.

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Treatment of Existing Versum Equity Awards

At the effective time, each Versum option that is outstanding immediately prior to the effective time will vest and be converted into a converted option relating to a number of shares of Entegris common stock equal to the product of (i) the number of shares of Versum common stock subject to the Versum option immediately prior to the effective time multiplied by (ii) the exchange ratio (rounded down to the nearest whole share number), with a per share exercise price equal to (a) the per share exercise price applicable to such Versum option immediately prior to the effective time divided by (b) the exchange ratio (rounded up to the nearest whole cent). Except as noted in the immediately preceding sentence, each converted option will continue to be governed by the same terms and conditions as were applicable to the Versum option immediately prior to the effective time.

At the effective time, each Versum RSU award and Versum PSU award that is outstanding immediately prior to the effective time will be converted into a converted RSU award relating to a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock subject to the Versum RSU award or Versum PSU award immediately prior to the effective time multiplied by (ii) the exchange ratio. For Versum PSU awards, the number of shares in clause (i) of the immediately preceding sentence will be determined based on actual performance through a shortened performance period ending immediately prior to the effective time. The converted RSU awards will vest and settle on terms (including acceleration events) at least as favorable as were applicable to the corresponding Versum RSU award or Versum PSU award immediately prior to the effective time, except that converted RSU awards relating to Versum PSU awards will vest solely based on continued service. Each converted RSU award will vest in full on the original vesting date or if the holder experiences a covered termination following the effective time and prior to the original vesting date, on the date of such covered termination. For employees of Versum and its subsidiaries, a covered termination means a termination by Versum or one of its subsidiaries or their successor in interest without cause or, to the extent good reason rights are provided for in the award agreement (or employment or similar agreement) applicable to the corresponding Versum RSU award or Versum PSU award, a resignation by the employee for good reason (as such terms are defined in the applicable Versum agreement), in either case, during the 24-month period following the effective time. For non-employee directors of Versum, a covered termination means the termination of their service as a director for any reason at or following the effective time.

At the effective time, each Versum DSU award will vest and be converted into the right to receive a number of shares of Entegris common stock equal to (i) the number of shares of Versum common stock covered by the Versum DSU award immediately prior to the effective time by (ii) the exchange ratio, with such shares distributed to the holder within 30 business days following the effective time.

The merger agreement prescribes certain treatment of Versum's existing equity awards, a summary of which is described under the section entitled **Interests of Versum's Directors and Executive Officers in the Merger** beginning on page 176.

Exchange of Shares

Exchange Agent

Entegris will deposit or cause to be deposited with an exchange agent selected by Entegris (with Versum's prior approval), for the benefit of the holders of Versum common stock, at or prior to the effective time, an aggregate number of shares of Entegris common stock to be issued in non-certificated book-entry form and, as promptly as reasonably practicable following the effective time, an aggregate amount of cash in U.S. dollars sufficient for the exchange agent to deliver to holders of Versum common stock the shares of Entegris common stock and cash in lieu of fractional shares of Entegris common stock required pursuant to the terms of the merger agreement. In addition,

Entegris will deposit or cause to be deposited with the exchange agent, as necessary from time to time after the effective time, any dividends or other distributions in respect of Entegris common stock with both a record and payment date after the effective time to which holders of unsurrendered certificates representing shares of Versum common stock may be entitled pursuant to the terms of the merger agreement.

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Such shares of Entegris common stock, cash and the amount of any dividends or other distributions deposited are referred to as the exchange fund.

Exchange Procedures

With respect to certificates formerly representing shares of Versum common stock, as promptly as reasonably practicable (but in any event within three business days) after the effective time, the combined company will cause the exchange agent to mail to each holder of record of each such certificate:

a notice advising such holders of the effectiveness of the merger;

a letter of transmittal in customary form; and

instructions for surrendering such certificate to the exchange agent.

Upon surrender to the exchange agent of such certificate (or affidavit of loss in lieu of such certificate as provided in the merger agreement) together with a duly executed and completed letter of transmittal and such other documents as may reasonably be required pursuant to such instructions, the combined company will cause the exchange agent to mail to each holder of record of any such certificate in exchange for the certificate, as promptly as reasonably practicable thereafter:

a statement reflecting the number of whole shares of Entegris common stock, if any, that such holder is entitled to receive in non-certificated book-entry form pursuant to the merger agreement in the name of such record holder; and

a check in the amount (after giving effect to any required tax withholdings as provided in the merger agreement) of (a) any cash in lieu of fractional shares plus (b) any unpaid cash dividends and any other dividends or other distributions in respect of Entegris common stock that such holder has the right to receive pursuant to the merger agreement.

With respect to shares of Versum common stock held in book-entry form not held through DTC, as promptly as reasonably practicable (but in any event within three business days) after the effective time, the combined company will cause the exchange agent to mail to each holder of record of any such share:

a notice advising such holders of the effectiveness of the merger;

a letter of transmittal in customary form; and

instructions for transferring such shares to the exchange agent.

Upon surrender to the exchange agent of book-entry shares not held through DTC in accordance with the terms of the letter of transmittal and accompanying instructions, the combined company will cause the exchange agent to mail to each holder of such book-entry shares not held through DTC, as promptly as reasonably practicable (but in any event within three business days) after the effective time:

a statement reflecting the number of whole shares of Entegris common stock, if any, that such holder is entitled to receive in non-certificated book-entry form pursuant to the merger agreement in the name of such record holder; and

a check in the amount (after giving effect to any required tax withholdings as provided in the merger agreement) of (a) any cash in lieu of fractional shares plus (b) any unpaid cash dividends and any other dividends or other distributions in respect of Entegris common stock that such holder has the right to receive pursuant to the merger agreement.

With respect to shares of Versum common stock held in book-entry form held through DTC, Entegris and Versum will cooperate to establish procedures with the exchange agent and DTC to ensure that the exchange agent will transmit to DTC or its nominees as soon as practicable after the effective time, upon surrender of

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shares of Versum common stock held of record by DTC or its nominees in accordance with DTC's customary surrender procedures, the merger consideration, cash in lieu of fractional shares of Entegris common stock, if any, and any unpaid cash dividends and any other dividends or other distributions in respect of Entegris common stock, in each case, that such holder has the right to receive pursuant to the merger agreement.

No interest will be paid or accrued on any amount payable for shares of Versum common stock pursuant to the merger agreement.

From and after the effective time, there will be no transfers on the stock transfer books of Versum of the shares of Versum common stock that were outstanding immediately prior to the effective time. From and after the effective time, the holders of certificates formerly representing shares of Versum common stock or shares of Versum common stock held in book-entry form will cease to have any rights with respect to such shares of Versum common stock except as otherwise provided in the merger agreement or by applicable law. If, after the effective time, certificates are presented to the combined company for any reason, they will be cancelled and exchanged as provided in the merger agreement.

Dividends and Distributions with Respect to Unexchanged Shares of Versum Common Stock

All shares of Entegris common stock to be issued pursuant to the merger will be deemed issued and outstanding as of the effective time and whenever a dividend or other distribution is declared by Entegris in respect of Entegris common stock, the record date for which is at or after the effective time, that declaration will include dividends or other distributions in respect of all shares issuable pursuant to the merger agreement. No dividends or other distributions in respect of shares of Entegris common stock with a record date at or after the effective time will be paid to any holder of any unsurrendered certificate representing Versum common stock until the certificate (or affidavit of loss in lieu of a certificate) is surrendered for exchange in accordance with the merger agreement. There will be issued or paid to the holder of record of the whole shares of Entegris common stock issued in exchange for Versum common stock in accordance with the merger agreement, without interest, (a) at the time of such surrender, the dividends or other distributions with a record date at or after the effective time theretofore payable with respect to such whole shares of Entegris common stock and not paid, and (b) at the appropriate payment date, the dividends or other distributions payable with respect to such whole shares of Entegris common stock with a record date at or after the effective time and prior to surrender but with a payment date subsequent to surrender.

Treatment of Fractional Shares

No fractional shares of Entegris common stock will be issued upon the conversion of shares of Versum common stock pursuant to the merger agreement. All fractional shares of Entegris common stock that a holder of shares of Versum common stock would be otherwise entitled to receive pursuant to the merger agreement will be aggregated, and such holder will be entitled to receive a cash payment, without interest, in lieu of any such fractional share, equal to the product (rounded to the nearest whole cent) of (a) the amount of such fractional share interest in a share of Entegris common stock to which such holder would be entitled pursuant to the merger agreement and (b) an amount equal to the average of the daily volume weighted average price per share of Entegris common stock on NASDAQ calculated for the ten consecutive trading days ending on the second full trading day immediately prior to (and not including) the closing date.

Termination of the Exchange Fund

Any portion of the exchange fund that remains unclaimed as of the date that is six months after the closing date will be delivered to Entegris. Any holder of shares of Versum common stock who has not by that point complied with the

terms of the exchange procedures in the merger agreement may thereafter look only to Entegris for delivery of the shares of Entegris common stock, cash in lieu of fractional shares of Entegris common stock, if any, and any unpaid cash dividends and any other dividends or other distributions, if any, and in each case, that such holder has the right to receive pursuant to the merger agreement.

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None of Entegris, Versum or the exchange agent will be liable to any person in respect of any portion of the merger consideration delivered to a public official pursuant to any applicable abandoned property, escheat or similar law. If any certificate formerly representing shares of Versum common stock or share of Versum common stock held in book-entry form has not been surrendered prior to seven years after the effective time, or immediately prior to such earlier date on which any shares of Entegris common stock, any cash in lieu of fractional shares of Entegris common stock and any unpaid cash dividends and any other dividends or other distributions, in each case, that a holder of any such shares has the right to receive pursuant to the merger agreement in respect thereof would otherwise escheat to or become property of any governmental entity, any such shares, cash, dividends or other distributions will, to the extent permitted by applicable law, become the property of Entegris, free and clear of all claims or interests of any person previously entitled thereto.

Lost, Stolen or Destroyed Share Certificates

In the event that any certificate formerly representing shares of Versum common stock is lost, stolen or destroyed, upon the making of an affidavit of that fact by the person claiming such certificate to be lost, stolen or destroyed and the posting by such person of a bond in customary amount and upon such terms as may be required as indemnity against any claim that may be made against it with respect to such certificate, the exchange agent will issue in exchange for such lost, stolen or destroyed certificate, the shares of Entegris common stock, cash in lieu of fractional shares of Entegris common stock, if any, and any unpaid cash dividends and any other dividends or other distributions, in each case, payable or issuable pursuant to the merger agreement, as if such lost, stolen or destroyed certificate had been surrendered.

Withholding Rights

Each of Entegris, the combined company, the exchange agent and any other withholding agent will be entitled to deduct and withhold from the consideration otherwise payable pursuant to the merger agreement to any holder of shares of Versum common stock and Versum equity awards such amounts as it is required to deduct and withhold with respect to the making of such payment under the Code or any other applicable state, local or foreign tax law.

Adjustments to Prevent Dilution

If, from the date of the merger agreement to the effective time, the issued and outstanding shares of Versum common stock or securities convertible or exchangeable into or exercisable for shares of Versum common stock or the issued and outstanding shares of Entegris common stock or securities convertible or exchangeable into or exercisable for shares of Entegris common stock, have been changed into a different number of shares or securities or a different class by reason of any reclassification, stock split (including a reverse stock split), stock dividend or distribution, recapitalization, merger, issuer tender or exchange offer, or other similar transaction, or a stock dividend with a record date within such period has been declared, then the merger consideration will be equitably adjusted to provide the holders of shares of Versum common stock and Entegris common stock the same economic effect as contemplated by the merger agreement prior to such event.

Combined Company Governance Matters

Under the merger agreement, Entegris and Versum have agreed to certain provisions relating to the governance of the combined company as of the effective time, including composition of the combined company board of directors and board committees and the roles of the chairman of the board of directors of the combined company and the chief executive officer of the combined company. For a more detailed description of the governance matters relating to the combined company, see the section entitled **The Merger Governance of the Combined Company** beginning on

page 124.

Subject to the receipt of the approval by Entegris stockholders of the Entegris charter proposal, at the effective time, the certificate of incorporation of Entegris, as amended and restated as set forth in Annex B, will

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be the certificate of incorporation of the combined company. At the effective time, the by-laws of Entegris, as in effect immediately prior to the effective time, will be the by-laws of the combined company.

Representations and Warranties

The merger agreement contains representations and warranties made by Versum to Entegris and by Entegris to Versum. Certain of the representations and warranties in the merger agreement are subject to materiality or material adverse effect qualifications (that is, they will not be deemed to be inaccurate or incorrect unless their failure to be true or correct is material or would result in a material adverse effect (as defined below) on the company making such representation or warranty). In addition, certain of the representations and warranties in the merger agreement are subject to knowledge qualifications, which means that those representations and warranties would not be deemed untrue, inaccurate or incorrect as a result of matters of which certain officers of the party making the representation did not have actual knowledge after reasonable inquiry. Furthermore, each of the representations and warranties is subject to the qualifications set forth on the disclosure letter delivered to Versum by Entegris, in the case of representations and warranties made by Entegris, or the disclosure letter delivered to Entegris by Versum, in the case of representations and warranties made by Versum (with each letter referred to as that party's disclosure letter), as well as the reports of Versum or Entegris, as applicable, filed with or furnished to the SEC during the period from January 1, 2018 through the business day prior to the date of the merger agreement (excluding any disclosures set forth or referenced in any risk factor section or in any other section to the extent they are forward-looking statements or cautionary, predictive or forward-looking in nature).

In the merger agreement, Versum has made representations and warranties to Entegris, and Entegris has made representations and warranties to Versum, regarding:

organization, good standing and qualification to do business;

such party's subsidiaries;

corporate authority and power with respect to the execution, delivery and performance of the merger agreement;

the filings with governmental entities needed in connection with the execution, delivery and performance of the merger agreement or the consummation of the merger and the other transactions contemplated by the merger agreement;

the absence of violations of, or conflicts with, such company's or its subsidiaries' organizational documents, applicable law and certain contracts as a result of the execution, delivery and performance of the merger agreement and the consummation of the merger and the other transactions contemplated by the merger agreement;

the proper filing of reports with the SEC since January 1, 2017, the accuracy of the information contained in those reports, compliance with the requirements of certain laws and the design of its internal disclosure controls and procedures;

the compliance with GAAP and SEC accounting rules and regulations with respect to financial statements included in or incorporated by reference in its SEC filings;

conduct of business in the ordinary course from January 1, 2018 through January 27, 2019 (the date of the merger agreement);

the absence of any event that would be reasonably expected to have a material adverse effect on such party from January 1, 2018;

absence of certain litigation and governmental orders;

absence of undisclosed liabilities;

employee benefits matters, including matters related to employee benefit plans;

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labor matters;

compliance with certain laws and regulations and such party's licenses;

inapplicability to the merger of state takeover statutes and anti-takeover provisions in such party's organizational documents;

environmental matters;

tax matters;

intellectual property;

insurance;

certain material contracts;

title to and interests in, and the operating condition of, such party's assets;

real property;

the absence of affiliate transactions; and

the absence of other representations and warranties.

In the merger agreement, Entegris has also made representations and warranties to Versum regarding:

Entegris' capital structure, including the number of shares of common stock, stock options and other equity-based awards outstanding;

the unanimous adoption by the Entegris board of directors of resolutions:

determining that the merger agreement and the transactions contemplated by the merger agreement are fair to, and in the best interests of, Entegris and its stockholders;

approving and declaring advisable the merger agreement and the transactions contemplated by the merger agreement, on the terms and subject to the conditions set forth in the merger agreement;

directing that the share issuance and the merger agreement be submitted to Entegris stockholders for their approval and adoption and the amended and restated certificate of incorporation be submitted to Entegris stockholders for their adoption; and

recommending that Entegris stockholders vote in favor of the adoption of the merger agreement and approval of the share issuance on the terms and subject to the conditions set forth in the merger agreement, and in favor of the adoption of the amended and restated certificate of incorporation, which is referred to as the Entegris recommendation;

the Entegris board of directors receipt of an opinion from Morgan Stanley that the exchange ratio is fair from a financial point of view to Entegris;

fees payable to brokers and financial advisors in connection with the merger; and

the required vote of Entegris stockholders to adopt the merger agreement (including the issuance contemplated thereby) (which is referred to as the required Entegris vote) and to adopt the amended and restated certificate of incorporation.

In the merger agreement, Versum has also made representations and warranties to Entegris regarding:

Versum's capital structure, including the number of shares of common stock, stock options and other equity-based awards outstanding;

the unanimous adoption by the Versum board of directors of resolutions:

determining that merger agreement and the transactions contemplated by the merger agreement are fair to, and in the best interests of, Versum and its stockholders;

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approving and declaring advisable the merger agreement and the transactions contemplated by the merger agreement, including the merger, on the terms and subject to the conditions set forth in the merger agreement;

directing that the merger agreement be submitted to a vote of Versum stockholders for their adoption; and

resolving to recommend that Versum stockholders vote in favor of the adoption of the merger agreement, which is referred to as the Versum recommendation;

the Versum board of directors receipt of an opinion from Lazard that the exchange ratio is fair from a financial point of view to holders of Versum common stock (other than the holders of Versum excluded shares);

fees payable to brokers and financial advisors in connection with the merger; and

the required vote of Versum stockholders to adopt the merger agreement (which is referred to as the required Versum vote).

For purposes of the merger agreement, a material adverse effect with respect to Versum or Entegris means any effect that is materially adverse to the business, condition (financial or otherwise) or results of operations of such party and its subsidiaries, taken as a whole; except that none of the following, alone or in combination, will be deemed to constitute a material adverse effect, or be taken into account in determining whether a material adverse effect has occurred or would reasonably be expected to occur:

effects generally affecting the economy, credit, capital, securities or financial markets in the United States or elsewhere in the world, including changes to interest rates and exchange rates, or political, regulatory or business conditions in any jurisdiction in which such party or any of its subsidiaries has material operations or where any of such party's or any of its subsidiaries' products or services are sold;

effects that are the result of factors generally affecting the semiconductor industry or any industry, markets or geographical areas in which such party and its subsidiaries operate;

any loss of, or adverse effect in, the relationship of such party or any of its subsidiaries, contractual or otherwise, with customers, employees, unions, suppliers, distributors, financing sources, partners or similar relationship to the extent caused by the entry into, announcement or consummation of the transactions contemplated by the merger agreement (except that this exception does not apply to the representations and warranties regarding the execution of the merger agreement violating organizational documents, contracts or laws);

the performance by any party of its obligations to the extent expressly required under the merger agreement;

any action taken (or not taken) by such party or any of its subsidiaries (1) that is required to be taken (or not to be taken) by the merger agreement and for which the party has requested in writing the other party's consent to permit its non-compliance and such non-requesting party has not granted such consent or (2) at the written request of the other party, which action taken (or not taken) is not required under the terms of the merger agreement;

changes or modifications, and prospective changes or modifications, in GAAP or in any law of general applicability, including the repeal thereof, or in the interpretation or enforcement thereof, after the date of the merger agreement;

any failure, in and of itself, by such party to meet any internal or public projections or forecasts or estimates of revenues or earnings for any period; except that this exception will not prevent or otherwise affect a determination that any effect underlying such failure has resulted in, or contributed to, or would reasonably be expected to result in, or contribute to, a material adverse effect (if not otherwise falling within any other exception);

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any effect resulting from acts of war (whether or not declared), civil disobedience, hostilities, sabotage, terrorism, geopolitical conditions, military actions or the escalation or worsening of any of the foregoing, any hurricane, flood, tornado, earthquake or other weather or natural disaster, or any outbreak of illness or other public health event or any other force majeure event, whether or not caused by any person; or

a decline in the market price, or change in trading volume, in and of itself, of the shares of common stock of such party on the NYSE or NASDAQ, as applicable, or any ratings downgrade or change in ratings outlook for such party or any of its subsidiaries; except that this exception will not prevent or otherwise affect a determination that any effect underlying such decline or change has resulted in, or contributed to, or would reasonably be expected to result in, or contribute to, a material adverse effect (if not otherwise falling within any other exceptions);

Notwithstanding the exceptions listed above, with respect to the first, second, sixth and eighth exceptions listed, such effect will be taken into account in determining whether a material adverse effect has occurred if it disproportionately adversely affects such party and its subsidiaries, taken as a whole, compared to other companies and their respective subsidiaries, taken as a whole, of comparable size, operating in the industries in which such party and its subsidiaries operate, but, in such event, only the incremental disproportionate impact of any such effect will be taken into account in determining whether a material adverse effect has occurred.

Conduct of Business Prior to the Effective Time

Each of Entegris and Versum has each agreed as to itself and its subsidiaries that, after the date of the merger agreement and prior to the effective time (subject to certain exceptions or except as approved in writing by Entegris or Versum, as applicable (which approval may not be unreasonably withheld, conditioned or delayed)) except as otherwise expressly contemplated by the merger agreement or as set forth in such party's disclosure letter, the business of it and its subsidiaries will be conducted in all material respects in the ordinary course and, to the extent consistent therewith, it and its subsidiaries will use their respective commercially reasonable efforts to preserve their business organizations intact and maintain existing relations and goodwill with governmental entities, customers, suppliers, licensors, licensees, distributors, creditors, lessors, employees and business associates and keep available the services of its and its subsidiaries' present officers, employees and agents.

From the date of the merger agreement until the effective time, subject to certain exceptions and except as expressly contemplated by the merger agreement, required by applicable law, approved in writing by the other party (which approval may not be unreasonably withheld, conditioned or delayed) or set forth in such party's disclosure letter, each party has agreed not to and to cause its subsidiaries not to:

make or propose any change to its organizational documents or, except for amendments that would both not materially restrict the operations of its businesses and not reasonably be expected to prevent, materially delay or materially impair the ability of such party to consummate the transactions contemplated by the merger agreement, the organizational documents of any of its subsidiaries;

other than in the ordinary course, except for any such transactions among its direct or indirect wholly-