

DAIS ANALYTIC CORP
Form 10-K
March 29, 2013

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2012

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT 1934

For the transition period from _____ to _____

Commission file number: 000-53554

DAIS ANALYTIC CORPORATION
(Exact name of registrant as specified in its charter)

New York
(State or Other Jurisdiction of
Incorporation or Organization)

14-1760865
(I.R.S. Employer
Identification No.)

11552 Prosperous Drive
Odessa, Florida
(Address of Principal Executive
Offices)

33556
(Zip Code)

Registrant's telephone number, including area code: (727) 375-8484

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to Section 12 (g) of the Act:
Common Stock, par value \$0.01 per share

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No "

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (Section 232.405) during the preceding 12 months. Yes x No "

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. "

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

| | | | |
|-------------------------|--------------------------|---------------------------|-------------------------------------|
| Large accelerated filer | <input type="checkbox"/> | Accelerated filer | <input type="checkbox"/> |
| Non-accelerated filer | <input type="checkbox"/> | Smaller reporting company | <input checked="" type="checkbox"/> |

(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act): Yes " No x

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately \$2,868,928 as of the last business day of the registrant's most recently completed second fiscal quarter, based upon the closing sale price on the OTC:BB reported for such date. Shares of common stock held by each officer and director and by each person who owns 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 29, 2013, the Registrant had 55,509,884 outstanding shares of its common stock, \$0.01 par value.

Documents incorporated by reference: none

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FORM 10-K
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PART I
INTRODUCTORY NOTE

FORWARD-LOOKING STATEMENTS

Information contained or incorporated by reference in this Annual Report may include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. This information may involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from the future results, performance or achievements expressed or implied by any forward-looking statements. Forward-looking statements, which involve assumptions and describe our future plans, strategies and expectations, are generally identifiable by use of the words “may,” “should,” “expect,” “anticipate,” “estimate,” “believe,” “intend” or “project” or the negative of these words or other variations on these words or comparable terminology.

This Annual Report on Form 10-K contains forward-looking statements, including statements regarding, among other things:

- our ability to continue as a going concern;
- our ability to achieve and maintain profitability;
- the price volatility of the common stock;
- the historically low trading volume of the common stock;
- our ability to produce, manage and fund our growth;
- our ability to attract and retain qualified personnel;
- unanticipated litigation;
- our ability to do business overseas;
- our ability to compete with current and future competitors;
- the ability of our licensees to sell our products;
- our ability to obtain additional financing;
- general economic and business conditions;
- other risks and uncertainties included in the section of this document titled “Risk Factors”; and
- other factors discussed in our other filings made with the Commission.

These statements may be found under “Management’s Discussion and Analysis” and “Description of Business,” as well as in other sections of this Annual Report generally. Actual events or results may differ materially from those discussed in forward-looking statements as a result of various factors, including, without limitation, the risks outlined under “Risk Factors” and matters described in this Annual Report generally. In light of these risks and uncertainties, there can be no assurance that the forward-looking statements contained in this Annual Report will in fact occur. We have no obligation to publicly update or revise these forward-looking statements to reflect new information, future events, or otherwise, except as required by applicable Federal securities laws, and we caution you not to place undue reliance on these forward-looking statements.

Third Party Data

This Form 10K also contains estimates and other information concerning our industry, including market size and growth rates, which are based on industry publications, surveys and forecasts, including those generated by us. This information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to these estimates. Although we believe the information in these industry publications, surveys and forecasts is reliable, we have not independently verified the accuracy or completeness of the information. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in “Risk Factors”.

ITEM 1. BUSINESS

Dais Analytic Corporation is a nano-structure polymer technology materials company that has developed and is commercializing applications using its materials. The first commercial product is called ConsERV™, a fixed plate energy recovery ventilator which we believe is useful in meeting building indoor fresh air requirements while saving energy and lowering emissions for most forms of Heating, Ventilation and Air Conditioning (HVAC) equipment. We are developing other nano-structure polymer technology applications including (i) “NanoAir”, a water based packaged heating and cooling system and (ii) “NanoClear”, a water clean-up process useful in the creation of potable water from sea, brackish or waste water. We further believe that our nano-structure polymer technology may be useful in developing an ultra-capacitor, a device that may be capable of greater energy density and power per pound than traditional capacitors or batteries.

Formation History

We were incorporated as a New York corporation on April 8, 1993 as Dais Corporation. We subsequently changed our name to Dais Analytic Corporation on December 13, 1999. We were formed to develop new, cost-effective polymer materials for various applications, including providing a lower cost membrane material for Polymer Electrolyte Membrane (“PEM”) fuel cells. We believe our research on materials science has yielded technological advances in the field of selective ion transport polymer materials.

In December 1999, we purchased the assets of Analytic Power Corporation, which was founded in 1984 to provide fuel cell and fuel processor design and consulting services, systems integration and analysis services to develop integrated fuel cell power systems, and we were re-named Dais Analytic Corporation. Analytic Power Corporation developed a portfolio of fuel cell and related fuel cell component technologies, including fuel cell stack designs, a membrane electrode assembly process, and natural gas, propane, diesel and ammonia fuel processors for use in creating integrated fuel cell systems.

In March 2002, we sold substantially all of our fuel cell assets to a large U.S. oil company for a combination of cash and the assumption by such company of certain of our obligations. After we sold a substantial portion of our fuel cell assets, we focused on expanding our nano-structured polymer platform, having already identified the Energy Recovery Ventilator (“ERV”) application as our first commercial product.

Recent Developments

On July 13, 2012, we repaid \$1,724,416 in principal and interest due pursuant to a secured convertible promissory note ("Secured Note") in the amount of \$1,500,000 issued by the Company and secured by all patents, patent applications and similar protections of the Company and all rents, royalties, license fees and "accounts" with respect to such intellectual property assets. On October 29, 2012, Company repaid \$1,323,561 (consisting of principal and interest) to satisfy and terminate an unsecured convertible promissory note (the "Convertible Note") issued to Platinum-Montaur Life Sciences, LLC ("Platinum-Montaur"). With the repayment of the Convertible Note, we also terminated a forbearance agreement, dated June 15, 2012 (the "Forbearance Agreement"), with Platinum Montaur.

In October of 2012, we entered into a License and Supply Agreement with MGE Energy LLC ("MGE"). Pursuant to the agreement, effective October 26, 2012, we licensed certain intellectual property and improvements thereto to MG Energy, for use in the manufacture and sale of energy recovery ventilators ("ERV") and certain other HVAC systems for installation in commercial, residential or industrial buildings in North America and South America. MG Energy also agreed to purchase its requirements of certain products including, but not limited to, our ConsERV™ energy recovery ventilator cores from us for MG Energy's use, pursuant to the terms and conditions of the agreement. As a result of this agreement, we expect both revenue and costs of goods sold will decrease in the first quarter of 2013. Energy recovery ventilators are mechanical equipment, of which an energy recovery ventilator air to air exchanger core is a component, that assists in the recovery of energy from the exhaust air expelled by an HVAC system for the purpose of pre-conditioning the incoming outdoor air's components prior to supplying the conditioned air to a residential or commercial building, either directly or as part of an air-conditioning system. Under the agreement, MG Energy retired the US \$2,000,000 Secured Promissory Note, dated July 13, 2012, including all interest accrued thereon, issued by the us to Michael Gostomski (the "Investor"), who assigned the Secured Promissory Note. This retirement is nonrefundable and noncreditable. Pursuant to this Agreement, MG Energy has also agreed to pay a royalty on the net sales price on products sold using our intellectual property.

Technology

We use proprietary nano-technology to reformulate thermoplastic materials called polymers. Nano-technology involves studying and working with matter on an ultra-small scale. One nanometer is one-millionth of a millimeter and a single human hair is around 80,000 nanometers in width. Polymers are chemical, plastic-like compounds used in diverse products such as Dacron, Teflon, and polyurethane. A thermoplastic is a material that is plastic or deformable, melts to a liquid when heated and to a brittle, glassy state when cooled sufficiently.

These reformulated polymers have properties that allow them to be used in unique ways. We transform polymers from a hard, water impermeable substance into a material which water and similar liquids can, under certain conditions, diffuse (although there are no openings in the material) as molecules as opposed to liquid water. Water and similar liquids penetrate the thermoplastic material at the molecular level without oxygen and other atmospheric gases penetrating the material. It is believed this selectivity is dependent on the size and type of a particular molecule.

Products

ConsERV™

We currently have commercialized the ConsERV™ product. ConsERV™ is an HVAC energy conservation product which should, according to various tests, save an average of up to 30% on HVAC ventilation air operating costs, lower CO2 emissions and allow HVAC equipment to be up to 30% smaller, reducing peak energy usage by up to 20% while simultaneously improving indoor air quality. This product makes HVAC systems operate more efficiently and results, in many cases, in energy and cost savings. ConsERV™ attaches onto existing HVAC systems, typically in commercial buildings, to provide ventilation within the structure. It pre-conditions the incoming air by passing through our nano-technology polymer which has been formed into a heat exchanger core. The nano-technology heat exchanger uses the stale building air that must be simultaneously exhausted to transfer heat and moisture into or out of the incoming air. For summer air conditioning, the "core" removes some of the heat and humidity from the incoming air,

transferring it to the exhaust air stream thereby, under certain conditions, saving energy. For winter heating, the “core” transfers a portion of the heat and humidity into the incoming air from the exhaust air stream thereby often saving energy.

Our ConsERV™ product has been the primary focus of our resources and commercialization efforts. When compared to similar competitive products, we believe based on test results conducted by the Air-Conditioning, Heating and Refrigeration Institute (AHRI), a leading industry association, ConsERV™ maintains an industry leading position in the management of latent heat. We expect ConsERV™ to continue to be our focused commercial product through 2013 with a growing emphasis on moving components of our Nano Clear and NanoAir technologies towards commercialization.

How ConsERV™ Works

Most building codes mandate commercial structures to provide certain levels of ventilation determined by use and occupancy. ERVs are systems used by HVAC manufacturers to increase energy efficiencies in HVAC units by transferring heat and humidity between air flows. They do this by capturing a portion of the energy already used to heat or cool air that is being released to the outside and use such released air to condition the incoming air stream. In an air conditioning application, heat and humidity that are part of the incoming air stream are transferred to the cool, dry exhaust air, thereby “pre-conditioning” the incoming air before it reaches the building’s air conditioning system. By pre-conditioning the incoming air, ERVs should increase the operating efficiency of the HVAC unit, thereby lowering the overall costs associated with heating and cooling buildings and potentially reducing the size and initial capital cost of the overall HVAC unit.

ConsERV™ has a “core” component made using our nano-structured material and may be described as a high-performance ERV. It is used in conjunction with a building’s HVAC equipment. The ConsERV™ energy recovery ventilator employs nano-technology based materials to create an exchange of sensible (temperature) and latent (humidity) energy between the two air streams using HVAC equipment to provide building ventilation. The first air stream typically exits a building at the temperature and relative humidity level set by the buildings air conditioning and heating equipment. The second air stream comes from the outside environment at a different temperature and relative humidity level and is used to bring outdoor air to the occupants of the building. The ConsERV™ product uses the energy found in the first air stream (air already cooler or heated) to condition the second air stream (the outdoor air coming in) before the second air stream (outside air) enters the HVAC equipment. The ConsERV™ product may save energy, in that it often reduces the required energy and size of the HVAC equipment and thereby may lower the cost of providing ventilation. In addition, it may lower carbon dioxide emissions because the HVAC equipment may not need to be used as frequently and often times can be reduced in size to provide the same levels of comfort indoors. The process is shown in the picture below.

Given third-party test data, our ConsERV™ product, with its nano-structured materials, offers better total performance than other fixed plate ERV products of which we are aware, with no moving parts and little or no cross-air stream contamination.¹ Our ConsERV™ core product has received UL 900 recognition and Air-Conditioning, Heating and Refrigeration Institute (“AHRI”) standard 1060 certification. Our ConsERV™ product is compatible with most commercial HVAC units and requires only a small amount of additional HVAC technical expertise to install. We believe the purchase and installation costs of our ConsERV™ product are comparable to the costs of many competing energy recovery products and our ConsERV™ product is more efficient in transferring moisture with lower life cycle maintenance costs.

¹ Air-Conditioning, Heating, and Refrigeration Institute (AHRI) – May 2008 test results. This study is publicly available and was not prepared for our benefit or funded by us.

Achieving increased sales revenue growth from our ConsERV™ products is predicated on success in seven key areas:

- Achieving continued engineering or technological improvements in key materials and assembly techniques to lower our ‘per unit’ cost structure.
 - Engineering of additional sizes of ConsERV products to meet market demands
 - Development of new core designs to meet broad spectrum of performance needs
-
- Continuing to implement ‘Lean Manufacturing’ techniques for in-house assembly processes as well as monitoring existing outsourced manufacturing and assembly relationships that lower our ‘per unit’ cost structure.
 - Securing additional depth in the sales channels including selling the ConsERV™ products into non-traditional application, as we are adding more independent sales representatives, licensees and distributors, supplying HVAC equipment manufacturers, as well as ERV Original Equipment Manufacturers (“OEM”), with presence in existing and evolving sales channels assisting our customers or partners to sell worldwide “in-country or region” to grow the ConsERV™ business.
 - Recruiting and retaining the necessary people and infrastructure to support sales growth of ConsERV™ and other products as they are introduced into their respective sales channels.
 - Access to sufficient working capital in a timely manner for the necessary steps outlined above to continue without interruption.

We are devoting growing amounts of time to other uses of our nano-structured products in ways which are not disruptive to the ConsERV™ effort. To date, only a small amount of revenue has been generated from these non-ConsERV™ related applications.

These product applications and activities include:

NanoAir™

Water Based packaged HVAC system or “NanoAir”: We expect this application would function to dehumidify and cool air in warm weather, or humidify and heat in cold weather. This NanoAir application may be capable of replacing a traditional refrigerant loop based heating/cooling system. The Company has a small prototype showing fundamental heating, cooling, humidification, and dehumidification operation of this evolving product. The NanoAir product is in the middle stage of prototype development. In 2010, the Company received a grant of \$681,322 from the US Department of Energy’s Advanced Research Projects Agency – Energy (“ARPA-E”), and grant of \$254,500 from Pasco County, Florida to assist us with progressing the NanoAir family of products. In addition, on January 23, 2013, ARPA-E announced that the Company was selected for negotiation of a supplemental award currently estimated as \$800,000, under the APRA-E/Naval Facilities Engineering Command Building Energy Efficiency Through Innovative Thermodynamics follow-on Funding Opportunity Announcement.

NanoClear™

Water Clean-up or “NanoClear”: We expect that this application would function to remove quantities of salt and other impurities from water to produce potable water using an environmentally friendly design that would use less energy and be less expensive than most other current methods. We have developed a series of functional demonstration units which highlight the basics of how this system works using the Company’s nano-structured materials to produce potable water from a number of types of contaminated water streams. The information accumulated from the demonstration units is being used as the basis for the product’s next planned inflexion point: the buildup of a 10m³ (approximately 26,500 gallons of clean water per day) pilot plant projected to be set up at a local County waste water treatment facility. The NanoClear product is currently in beta stage where it is to undergo further testing and scaling.

NanoCap™

Ultra-capacitor: Based on initial material tests conducted by two third parties, we believe that by applying a combination of our nano-materials we may be able to construct a device which stores energy similar to a battery with projected increases in energy density and lifetimes. We believe the key application for such a device would be in transportation. We have not invested significant resources to date in the development of this application.

The Company has identified other potential products for our materials and processes as well as accumulating basic data to support the needed functionality and market differentiation of these products based on using our nano-technology based inventions. Such applications may include immersion coatings and performance fabrics. These other products are based, in part, upon the known functionality of the Company’s materials and processes.

Patents

We own the rights to nine U.S. patents, one pending U.S. patent applications, and four Patent Cooperation Treaty (“PCT”) applications. National stage applications based on one of the PCT applications have been filed in the U.S., China, Hong Kong and Europe, national stage applications based on the second and third PCT application have been filed in the U.S. and China and a national stage application based on the fourth PCT application has been filed in the U.S and has been issued a notice of allowance. A divisional application based on one of the above national phase applications has been filed in China and Hong Kong. In addition, we co-own two PCT applications with Aegis Biosciences LLC, a biomaterials drug delivery technology company. National stage applications based on one of the co-owned PCT applications have been filed in the U.S., China, Hong Kong and Europe, and a National stage application based on the other co-owned PCT application has been filed in the U.S. These patents relate to, or are applications of, our nano-structured polymer materials that perform functions such as ion exchange and modification of surface properties. The polymers are selectively permeable to polar materials, such as water, in molecular form. Selective permeability allows these materials to function as a nano-filter in various transfer applications. These materials are made from base polymer resins available from a number of commercial firms worldwide and possess what we believe to be some unique and controllable properties, such as:

- **Selectivity:** Based on our research, we believe that when the polymer is made there are small channels created that are 5 to 30 nanometers in diameter. There are two types of these channels: hydrophilic (water permeable), and hydrophobic (water impermeable). The channels can be chemically tuned to be selective for the ions or molecules they transfer. The selectivity of the polymer can be adjusted to efficiently transfer water molecules from one face to the other using these channels.
- **High transfer rate:** Based on in-house testing protocols and related results, we have found that the channels created when casting the materials into a nano-structured membrane have a transfer rate of water, or flux, greater than 90% of an equivalent area of an open tube. This feature is fundamental to the material’s ability to transfer moisture at the molecular level while substantially allowing or disallowing the

transfer of certain other substances at a molecular level.

- Unique surface characteristic: The materials offer a surface characteristic that we believe inhibits the growth of bacteria, fungus and algae and prevents adhesives from attaching.

The molecular selectivity, transfer rate and surface coating properties, coupled with our ability to produce the nano-structured materials at what we believe is an affordable price, distinguishes our technology and value-added products. By incorporating our nano-structured materials into existing products, we strive to address current real-world market needs by offering what we believe to be higher efficiencies and improved price performance. For example, there are other energy recovery mechanisms available for HVAC that use coated paper or desiccant technology instead of our highly efficient nano-structured polymer materials.

Manufacturing

We do not have long term contractual relationships with any of our manufacturers or vendors. The only product or service which we could not have purchased elsewhere and used in the ConsERV™ business is the plastic based sheet good. In progress is a project aimed at lessening the Company's exposure in this sheet good area. Purchases to date of raw materials and related services have been on a purchase order basis using non-disclosure agreements. Our manufacturing process is described below.

Polymer Membrane

Commercially available polymer resin in flake form and industrial grade solvents are mixed together using a proprietary process involving heat, industrial mixers, and solvents. The resin and the solvents are commercially available from any number of chemical supply houses, or firms such as Dow and Kraton (formerly Shell Elastomers then part of Royal Dutch Shell). Our process changes the molecular properties of the starting polymer resins into a liquid material which we believe gives the attribute of being selective in what molecules it will allow through the plastic, which includes water molecules. This process, called 'sulfonation', is done at facilities around the world known as Toll Houses. These are firms which specialize in making small lot (by industry standards) runs of specialty chemicals.

Plastic Based Sheet Good

A thin coating of the liquid polymer material is applied on one side of the sheet good by a 'tape casting' firm of which there are many in the United States. The coated sheet good is heated in a process designed to bond the polymer solution and rolled sheet good together. The resulting 'modified sheet good' is then re-coiled into rolls and shipped to us. Currently one vendor provides the sheet good to us. We have not sought additional vendors for this component. However, we have identified other entities making similar types of products and believe such entities and products may provide alternatives should one be required. As noted above the Company is working on this project to lower its exposure.

The "Core"

The modified sheet good is cut into defined dimensions and glued to a PVC formed spacer. This 'spacer/glued modified sheet good' is a single layer. Multiple layers are stacked one on top the other until a certain height is achieved. Once the proper height is achieved, these layers are then fitted with a galvanized sheet metal plate on the top and bottom of the stack along with galvanized sheet metal 'Y' shaped bracket on each of the four corners of the assembly. This assembly is called a 'core'. The galvanized sheet metal is a world-wide commodity material formed to our specifications by local and out-of-town sheet metal forming companies. We have no long term contractual relationships with firms making the PVC spacers, supplying the glue, supplying rivets to hold the structure together, and the sheet metal firms making the top and bottom plate as well as the side rails.

Completion

For the complete ConsERV™ system, one or more cores are placed inside of aluminum or steel boxes built by a vendor, our licensees or us. The box may or may not also be fitted with an electric motor, fan, electric relay, and electrical disconnect. Inclusion or exclusion of the electric motor and fan is dictated by the customers' needs and current HVAC system. Once outfitted with cores, the energy recovery ventilator is complete. We have no long term contractual relationships with firms providing the aluminum or steel parts used to build the box, the motors, the fans, the relays, or

the electrical disconnects.

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Licensing

In October of 2012, we entered into a License and Supply agreement with MGE Energy LLC (“MGE”) owned by a shareholder of the Company. Pursuant to the agreement, we granted MGE a license to use certain technology to manufacture, sell, lease and distribute certain products for use in energy recovery ventilators installed in commercial and residential buildings in North and South America. We are to receive a royalty based on MGE, and any sub-licensee’s sales. In addition, as part of the license agreement, MGE and any sublicensees are to purchase certain energy recovery ventilator products from us. While we have earned licensing revenue under agreements licensing our technology in the past, we may not receive material revenue from these agreements, including the one described above, in the near or foreseeable future.

Customers and Suppliers

We are dependent on third parties to manufacture the key components needed for our nano-structured based materials and value added products made with these materials. Accordingly, a supplier’s failure to supply components in a timely manner, or to supply components that meet our quality, quantity and cost requirements or our technical specifications, or the inability to obtain alternative sources of these components on a timely basis or on terms acceptable to us, would create delays in production of our products or increase our unit costs of production. Certain of the components contain proprietary products of our suppliers, or the processes used by our suppliers to manufacture these components are proprietary. If we are required to replace any of our suppliers, while we should be able to obtain comparable components from alternative suppliers at comparable costs, this would create a delay in production.

For each of the years ended December 31, 2012 and 2011, four customers accounted for approximately 60% (four customers represented the following percentages of sales 6%, 7%, 8%, and 39%) and 57% (four customers represented the following percentages of sales 18%, 15%, 12% and 12%) of the Company’s total revenue, respectively. These percentages may increase as a result of the License and Supply Agreement with MGE. At December 31, 2012 and 2011 amounts due from these customers was approximately 57% and 51% of total accounts receivable, respectively.

Research and Development

The Company has spent approximately \$521,100 and \$821,400 on research and development during the years ended December 31, 2012 and 2011, respectively. During the year ended December 31, 2012 and 2011, the Company received approximately \$67,200 and \$769,000, respectively, to offset the cost of research and development expenses as it relates to a project that is funded by grants from Pasco County and the Department of Energy, American Economic Investment and Recovery Act.

Key Relationships

We have strategic relationships with leaders in the energy industry who have entered into sales, marketing, distribution and product development arrangements with us and, in some cases, hold equity in our Company. They include:

Electric Power Research Institute (“EPRI”)

We have an on-going relationship with a number of utilities through EPRI. The EPRI participants include Public Service Company of New Mexico, Kansas City Power & Light, Reliant Energy Incorporated, Alliant Energy Company, Omaha Public Power District, Wisconsin Public Service Corporation, Southern California Gas Company, EDF Electricite de France, Consolidated Edison of New York, Tokyo Gas Co., Ltd., CINERGY Corporation, Northern States Power Company, American Electric Power Company, Inc., Sierra Pacific Power Company, Public Service Electric & Gas Company (“PSE&G”), and Tennessee Valley Authority. The EPRI users group has been helpful in creating opportunities for us to define specifications and applications for our nano-structured materials that address existing energy related challenges while possibly opening new sources of revenue.

ConsERV™ – Sales and Marketing Strategies

During 2012 we marketed our ConsERV™ product in North America principally through alliances with local independent manufacturer representatives. During that period we had approximately 39 independent commercial sales representatives in various locations throughout North America selling the ConsERV™ product. . In October of 2012, we entered into a License and Supply agreement with MGE Energy LLC (“MGE”). Pursuant to the agreement, we granted MGE a license to use certain technology to manufacture, sell, lease and distribute certain products for use in energy recovery ventilators installed in commercial and residential buildings in North and South America. As a result of this agreement, we expect both revenue and costs of goods sold will decrease in the first quarter of 2013. We are to receive a royalty on any sale by MGE and its sublicensees of product containing our technology in energy recovery ventilators. In addition, as part of the license agreement, MGE and any sublicensees are to purchase certain energy recovery ventilator components from us. In February 2013, MGE’s sublicensee commenced marketing, manufacturing and selling ConsERV™ in North and South America. We are currently supplying ConsERV™ cores to them in accordance with the License and Supply Agreement.

We also have secured and continue to discuss relationships with other leading industry HVAC manufacturers, HVAC product distributors, energy service companies and ERV manufacturers outside of North and South America. In addition we are discussing relationships for use of our ConsERV™ products in other applications outside of energy recovery ventilation world-wide. We continue to leverage our relationship with EPRI and a group of 16 utility companies (consisting of EPRI members and some of our minority shareholders) into expected sources of future product sales.

Future Products – Sales and Marketing Strategies

Our intended sales and marketing strategy will require us to create alliances with companies having strong, existing channel presence in the target industries. We intend to bring industry seasoned executive talent into the Company at the appropriate time to influence the product’s feature set, and to then to establish and grow the market development and revenue generation of the NanoAir, and NanoClear product. We believe working with OEM’s who are industry leaders during development allows us to better address the market’s needs and possibly accelerate the time to market cycle.

Competition and Barriers to Entry

We believe the efficacy of our value-added products and technology has the ability to decrease sales of competing products, thus taking business away from more established firms using older technology. We believe that our ConsERV™ product may become a functional component of newer, more efficient OEM products. A key challenge is to educate channel decision makers of the benefits of products made using our materials and processes to overcome the strength of the current product sales.

There are a number of companies located in the United States, Canada, Europe and Asia that have been developing and selling technologies and products in the energy recovery industry, including but not limited to: Semco, Greenheck, Venmar, Bry-Air, dPoint, Renewaire and AirXchange.

We will experience significant competition regarding our products because certain competing companies possess greater financial and personal resources than us. Future product competitors include, but are not limited to:

| Products | Current and Future Competitors |
|----------------|--|
| ConsERV | Semco, Greenheck, Venmar, Bry-Air, dPoint, Renewaire and AirXchange. |
| NanoClear | Dow, Siemens, GE |
| NanoAir | AAON, Trane, Carrier, York, Haair, Mitsubishi, LG |
| Ultracapacitor | Maxwell, Ioxus, B&D |

We believe that the combination of our nano-material platform's characteristics (high selectivity, high flux rate, manufacturability, et al.), growing patent position, are competitive advantages, which may allow us time to execute our business plan. The majority of our competitors may experience barriers to entry in these markets primarily related to the lack of similarly performing proprietary materials and processes.

Intellectual Property

As stated above, we have nine U.S. patents, including patents covering the composition and structure of a family of ion conducting polymers and membranes and certain applications of the polymer. We believe some of these patents make reference to applications relating to the materials we are developing. Please see the “Risk Factors” Section. A list of our existing patents follows:

1. Patent No. 6,841,601– Cross-linked polymer electrolyte membranes for heat and moisture exchange devices. This patent was issued on January 11, 2005 and expires on or about March 12, 2022.
2. Patent No. 6,413,298 – Water and ion-conducting membranes and uses thereof. This patent was issued on July 2, 2002 and expires on or about July 27, 2020.
3. Patent No. 6,383,391 – Water and ion-conducting membranes and uses thereof. This patent was issued on May 7, 2002 and expires on or about July 27, 2020.
4. Patent No. 6,110,616 – Ion-conducting membrane for fuel cell. This patent was issued on August 29, 2000 and expires on or about January 29, 2018.
5. Patent No. 5,679,482 – Fuel Cell incorporating novel ion-conducting membrane. This patent was issued on October 21, 1997 and expires on or about October 20, 2014.
6. Patent No. 5,468,574 – Fuel Cell incorporating novel ion-conducting membrane. This patent was issued on October 21, 1995 and expires on or about May 22, 2014.
7. Patent No. 7,179,860 – Cross-linked polymer electrolyte membranes for heat, ion and moisture exchange devices. This patent was issued on February 20, 2007 and expires on or about March 11, 2022.
8. Patent No. 7,990,679 – Nanoparticle Ultra Capacitor. This patent was issued on August 2, 2011 and expires on or about November 22, 2029.
9. U.S. Patent No. 8,222,346B2 -Novel Coblock Polymers and Method for Making Same. This patent was issued on July 17, 2012 and expires on or about September 28, 2027

We have provisional and patent applications in the following areas: Advanced Polymer Synthesis Processes, Anionic Exchange Electrolyte Polymers, Energy Storage Devices, Reversible Liquid to Air Enthalpy Core Applications and Construction, and Water Treatment and Desalination.

The following is a partial list of the patent applications publicly visible:

1. WO/2008/039779 – Enhanced HVAC System and Method
2. WO/2008/089484 – Multiphase selective Transport Through a Membrane
3. WO/2008/141179 – Molecule Sulphonation Process *
4. WO/2009/002984 – Stable and Compatible Polymer Blends*
5. WO2012/033827 A1- Fluid Treatment Systems and Methods of Using Selective Transfer Membranes
6. WO2011/085186 - Anionic Exchange Electrolyte Polymer Membranes
WO 2011/085917- Energy Storage Devices Including a solid Multilayer Electrolyte

* Patent applications jointly owned with Aegis Biosciences, LLC.

Patents may or may not be granted on these applications. As noted above, some of these applications are jointly owned with Aegis Biosciences, LLC. We also seek to protect our proprietary intellectual property, including intellectual property that may not be patented or patentable, in part by entering into confidentiality agreements with our current and prospective strategic partners and employees.

Government Regulation

We do not believe the sale, installation or use of our current nano-structured products will be subject to any government regulation, other than perhaps adherence to building codes, and water safety regulations. We do not believe that the cost of complying with such codes and regulations, to the extent applicable to our products, will be prohibitive.

We do not know the extent to which any existing or new regulations may affect our ability to distribute, install and service any of our products. Once our other products reach the commercialization stage and we begin distributing them to our target markets, federal, state or local governmental entities may seek to impose regulations.

We are also subject to various international, federal, state and local laws and regulations relating to, among other things, land use, safe working conditions, and environmental regulations regarding handling and disposal of hazardous and potentially hazardous substances and emissions of pollutants into the atmosphere. Our business may expose us to the risk of harmful substances escaping into the environment, resulting in potential personal injury or loss of life, damage to or destruction of property, and natural resource damage. Depending on the nature of any claim, our current insurance policies may not adequately reimburse us for costs incurred in settling environmental damage claims, and in some instances, we may not be reimbursed at all. To date, we are not aware of any claims or liabilities under these existing laws and regulations that would materially affect our results of operations or financial condition.

Employees

As of December 31, 2012, we employed 33 full-time employees and one part time employee in our Odessa, Florida facility. Of the 34 employees, we have 20 technicians, 1 product managers, a polymer chemist, a polymer engineer, 5 engineers, , a General Manager of Operations, 1 administrative assistant, 1 administrators, a Vice President of Sales, a Chief Financial Officer and a President and Chief Executive Officer. None of the employees are subject to a collective bargaining agreement. We consider our relations with our employees to be good.

Principal Offices

Our principal office is located at 11552 Prosperous Drive, Odessa, FL 33556.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below. Our business, financial condition, results of operations or cash flows could be materially adversely affected by any of the events or circumstances described in these risks. The valuation for the Company could also decline due to any of these events or circumstances, and you may lose all or part of your investment. This document also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of several factors, including the risks faced by us described below and elsewhere in this Annual Report. In assessing these risks, you should also refer to the other information contained in this Annual Report, including our financial statements and related notes.

Risks Related to Our Business

Our independent registered public accounting firm has issued an unqualified opinion with an explanatory paragraph to the effect that there is substantial doubt about our ability to continue as a going concern.

Our independent registered public accounting firm has issued an unqualified opinion with an explanatory paragraph to the effect that there is substantial doubt about our ability to continue as a going concern. This unqualified opinion with an explanatory paragraph could have a material adverse effect on our business, financial condition, results of operations and cash flows. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources” and Footnotes to our financial statements for the fiscal year ended December 31, 2012, included elsewhere in this filing.

We have no committed sources of capital and do not know whether additional financing will be available when needed on terms that are acceptable, if at all. This going concern statement from our independent registered public accounting firm may discourage some investors from purchasing our stock or providing alternative capital financing. The failure to satisfy our capital requirements will adversely affect our business, financial condition, results of operations and prospects.

Unless we raise additional funds, either through the sale of our securities or one or more collaborative arrangements, we will not have sufficient funds to continue operations. Even if we take these actions, they may be insufficient, particularly if our costs are higher than projected or unforeseen expenses arise.

We have a history of operating losses, and we expect our operating losses to continue for the foreseeable future. If we fail to obtain financing we will be unable to execute our business plan and/or we may not be able to continue as a going concern.

We have incurred substantial losses since we were funded in 1993 and have achieved profitability in only one year to date. We have developed a family of nano-structured polymers and processes and are marketing our first product application, ConsERV™. In October of 2012, we entered into a License and Supply agreement with MGE Energy LLC (“MGE”). Pursuant to the agreement, we granted MGE a license to use certain technology to manufacture, sell, lease and distribute certain products for use in energy recovery ventilators installed in commercial and residential buildings in North and South America. We are to receive a royalty on any sale by MGE and its sub-licensees of product containing our technology in energy recovery ventilators (“ConsERV™ Products”). In addition, as part of the license agreement, MGE and any sublicensees are to purchase ConsERV™ Products from us. In January 2013, MGE’s sub-licensee commenced marketing, manufacturing and selling products under the license. We are currently supplying ConsERV™ cores to this sublicensee in accordance with the License and Supply Agreement. We also have sales relationships with entities outside of North and South America for use our ConsERV™ products in energy recovery ventilators in commercial and residential buildings and are actively discussing similar relationships with additional entities. In addition, we are discussing relationships for use of our ConsERV™ products in other applications outside of energy recovery ventilation. However, prior to October of 2012, the majority of our efforts were centered on the North American market and therefore revenues from sales outside of North America have not been material. Thus, we anticipate, least the near future, to be dependent on sales to and royalty payments from the above licensee for the majority for our revenues. The other listed applications in this document may take at least 12 to 36 months to develop. Thus, we expect our operating losses to continue for the foreseeable future as we continue to expend substantial resources to expand the ConsERV™ business while working to bring the other identified applications to the market including research and development, design and testing, obtaining third party validations, identifying and securing collaborative partnerships, executing to enter into strategic relationships, or selling materials or value-added components. Furthermore, even if we were to sell a greater number of ConsERV™ products in 2013, we anticipate that we will continue to incur losses until we can cost-effectively produce and sell our products to a wider market. Our accumulated deficit was \$37,951,827 as of December 31, 2012. It is possible that we will never generate sufficient revenue to sustain profitability. Even if we have achieved profitability in 2012, we may not be able to sustain or increase profitability in 2013 or any future years.

We financed our operations since inception primarily through private sales of our common stock and preferred stock, issuance of convertible promissory notes; issuance of unsecured promissory notes, cash received in connection with exercise of warrants, license fees and the sale of certain fuel cell assets in 2002. As of December 31, 2012, we had \$1,145,380 in current assets.

Even if we are successful in raising additional equity capital to fund our operations, we will still be required to raise an additional substantial amount of capital in the future to fund our development initiatives and to achieve profitability. Our ability to fund our future operating requirements will depend on many factors, including the

following:

- ability to obtain funding from third parties;
- progress on research and development programs;
- time and cost required to gain third party approvals;
- cost of manufacturing, marketing and distributing our products;
- cost of filing, prosecuting and enforcing patents, patent applications, patent claims and trademarks;
- status of competing products; and
- market acceptance and third-party reimbursement of our products, if successfully developed.

There are no assurances that future funding will be available on favorable terms or at all. If additional funding is not obtained, we will need to reduce, defer or cancel development programs and planned initiatives, to the extent necessary. The failure to fund our capital requirements would have a material adverse effect on our business, financial condition and results of operations.

Failure to achieve and maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 could have a material adverse effect on our business and operating results. In addition, current and potential stockholders could lose confidence in our financial reporting, which could have a material adverse effect on our stock price.

Effective internal controls are necessary for us to provide reliable financial reports and effectively prevent fraud. If we cannot provide reliable financial reports or prevent fraud, our operating results could be harmed. We are required to document and test our internal control procedures in order to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act, which requires annual management assessments of the effectiveness of our internal controls over financial reporting. During the course of our testing, we may identify deficiencies which we may not be able to remediate in time for compliance with the requirements of Section 404. In addition, if we fail to maintain the adequacy of our internal controls, as such standards are modified, supplemented or amended from time to time; we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal controls over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act. Failure to achieve and maintain an effective internal control environment could also cause investors to lose confidence in our reported financial information, which could have a material adverse effect on our stock price.

We cannot provide assurance as to the result of these efforts. We cannot be certain that any measures we take will ensure that we implement and maintain adequate internal controls in the future. Any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to meet our reporting obligations.

In the event the lease on our corporate office and production space is terminated, we may not be able to acquire a lease on another suitable property, or a lease on a suitable property at a comparable cost.

Ethos Business Ventures, LLC is our landlord. Our CEO, Mr. Tangredi, is a principal owner of this entity. We note that under the terms of our lease agreement for our corporate office and production space, the lease may be terminated upon 30 days prior written notice by landlord and 90 days prior written notice by us. If this lease is terminated, or if for any reason Mr. Tangredi should become unable to continue to lease this space to us, we may not be able to acquire another lease for another suitable property or a lease on a suitable property at a comparable cost in a timely manner, which could materially disrupt our operations. Even if we are able to relocate into another suitable property at a comparable cost in a timely manner, we would incur significant moving expenses.

Any future indebtedness could adversely affect our financial health.

In the past we incurred a significant amount of indebtedness to finance our operations and growth. This debt has been satisfied. However, in the future, we may need to incur debt to finance our operations and growth and any such indebtedness could result in negative consequences to us, including:

- increasing our vulnerability to general adverse economic and industry conditions;
- requiring a portion of our cash flow from operations be used for the payment of interest on any debt we may incur, thereby reducing our ability to use our cash flow to fund working capital, capital expenditures and general corporate requirements;
- limiting our ability to obtain additional financing to fund future working capital, capital expenditures and general corporate requirements;
- limiting our flexibility in planning for, or reacting to, changes in our business;
- placing us at a competitive disadvantage to competitors who have less indebtedness;
- and
-

if our assets are pledged under any such debt, the failure to meet the terms and conditions of any such debt instruments, could result in us having no access to our technology.

The economic downturn has affected, and is likely to continue to adversely affect, our operations and financial condition potentially impacting our ability to continue as a going concern.

The economic downturn has resulted in a reduction in new construction and less than favorable credit markets, both of which may adversely affect us. Certain vendors from which we currently secure parts for our ConsERV™ products have and may continue to either reduce or eliminate payment terms. Hence, more capital is required to secure parts necessary to produce our products. In addition, our products are often incorporated in new construction which has experienced a marked down turn in project starts over the past year and such trend may continue in 2013. Although the portion of new construction most affected is home sales, which represents a minority of our sales, commercial construction has also experienced a reduction in starts with some projects being delayed and possibly eliminated. If the commercial construction market stagnates or decreases in volume or project size, our operations and financial condition could be negatively impacted. Various economic stimulus measures by the federal and state governments appear to have targeted energy products. ConsERV™ may qualify under said programs and we may potentially benefit. However, when and if we will experience any increase in sales or investment due to these programs is uncertain. As noted above, we intend to continue to finance operations, primarily through license and supply agreements and private sales of debt and equity securities. In light of the recent economic downturn we may not be able to secure additional financing on acceptable terms, if at all. Unfavorable terms for a financing transaction would adversely impact our business, financial condition and/or results of operations. In the event we are unable to secure additional financing our business may fail.

We are dependent on a few customers and if these customers do not purchase our products, we will not generate a profit.

We are dependent on third parties to manufacture the key components needed for our nano-structured based materials and value added products made with these materials. Accordingly, a supplier's failure to supply components in a timely manner, or to supply components that meet our quality, quantity and cost requirements or our technical specifications, or the inability to obtain alternative sources of these components on a timely basis or on terms acceptable to us, would create delays in production of our products or increase our unit costs of production. Certain of the components contain proprietary products of our suppliers, or the processes used by our suppliers to manufacture these components are proprietary. If we are required to replace any of our suppliers, while we should be able to obtain comparable components from alternative suppliers at comparable costs, this would create a delay in production.

If we fail to successfully address the challenges, risks and uncertainties associated with operating as a public company, our business, results of operations and financial condition would be materially harmed.

We have and will continue to incur a significant increase in costs as a result of operating as a public company, and our management has and will be required to devote substantial time to new compliance initiatives. Until November of 2008 we had never operated as a public company. In preparation for and since reporting as a public company, we have and expect to continue to incur significant legal, accounting and other expenses that we did not incur as a non-reporting company. In addition, the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), as well as new rules subsequently implemented by the Securities and Exchange Commission (the "SEC") and various stock exchanges, has imposed many new requirements on public companies, including requiring changes in corporate governance practices. Our management and other personnel have and will continue to devote a substantial amount of time to these new compliance procedures.

As a public company, we are now subject to the reporting requirements of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), the Sarbanes-Oxley Act and the rules promulgated by the SEC and AMEX, if and when accepted, in response to the Sarbanes-Oxley Act. The Exchange Act requires, among other things, that we file annual, quarterly and current reports with respect to our business and financial condition. The Sarbanes-Oxley Act

requires, among other things, that we maintain effective disclosure controls and procedures and internal controls for financial reporting.

If we or our independent registered public accounting firm identifies deficiencies in our internal controls that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by SEC or other regulatory authorities, which would entail expenditure of additional financial and management resources.

These rules and regulations could also make it more difficult for us to attract and retain qualified independent members of our Board of Directors. Additionally, we have found these rules and regulations make it more difficult and more expensive for us to obtain director and officer liability insurance. We have, and may be required once again, to accept reduced policy limits and/or coverage or incur substantially higher costs to obtain the same or similar coverage.

Our ConsERV™ products are in small volume production, we have no long term experience manufacturing our products on a commercial basis and may not be able to achieve cost effective large volume production.

Our ability to expand commercial production of our ConsERV™ products is subject to significant uncertainties, including: completion of necessary product automation, developing experience in manufacturing and assembly on a large commercial scale; assuring the availability of raw materials and key component parts from third party suppliers; and developing effective means of marketing and selling our product. We are assembling our ConsERV™ products at our facility in Odessa, Florida. Initial production costs of these products are high with no or a lower than desired profit margin. As a result, we believe we will need to reduce unit production costs, including the nano-structured materials themselves made to our specifications by third parties, over time in order to offer our products at a profitable basis on a commercial scale. Our ability to achieve cost reductions in all areas of nano-structured materials and value added products depends on entering into suitable manufacturing relationships with component suppliers, as well as increasing sales volumes so that we can achieve economies of scale. A failure to achieve a lower cost structure through economies of scale and improvements in engineering and manufacturing in a timely manner would have a material adverse effect on our business and financial results. There can be no assurance that we will obtain higher production levels or that the anticipated sales prices of our products will ever allow an adequate profit margin.

We may not be able to meet our product development and commercialization milestones.

We have established internal product and commercialization milestones and dates for achieving development goals related to technology and design improvements of our products. To achieve these milestones we must complete substantial additional research, development and testing of our products and technologies. Except for our ConsERV™ product, we anticipate that it will take at least 12 to 36 months to develop and ready our other products for scaled production. Product development and testing are subject to unanticipated and significant delays, expenses and technical or other problems. We cannot guarantee that we will successfully achieve our milestones. Our business strategy depends on acceptance of our products by key market participants and end-users.

Our plans and ability to achieve profitability depend on acceptance by key market participants, such as vendors and marketing partners, and potential end-users of our products. We continue to educate designers and manufacturers, including those of HVAC equipment, with respect to our ConsERV™ product. More generally, the commercialization of our products may also be adversely affected by many factors that are out of our control, including:

- willingness of market participants to try a new product and the perceptions of these market participants of the safety, reliability and functionality of our products;
- emergence of newer, possibly more effective technologies;
- future cost and availability of the raw materials and components needed to manufacture and use our products;
- cost competitiveness of our products; and
- adoption of new regulatory or industry standards which may adversely affect the use or cost of our products;
- ability of our licensees to market and sell sufficient quantities of our ConsERV™ product in their respective territories

Accordingly, we cannot predict with any certainty that there will be acceptance of our products on a scale sufficient to support development of mass markets for those products.

Our Expansion into New Products, Services, Technologies and Geographic Regions Subjects Us to Additional Business, Legal, Financial and Competitive Risks

We may have limited or no experience in our newer market segments. These offerings may present new and difficult technology challenges, and we may be subject to claims if customers of these offerings experience disruptions or failures or other quality issues. In addition, profitability, if any, in our newer activities may not exist or be lower than in our other activities, and we may not be successful enough in these newer activities to recoup our investments in them. If any of this were to occur, it could damage our reputation, limit or curtail our growth and negatively affect our operating results.

We are dependent on third party suppliers and vendors for the supply of key components for our products.

We are dependent on third parties to manufacture the key components needed for our nano-structured based materials and value added products made with these materials. Accordingly, a supplier's failure to supply components in a timely manner, or to supply components that meet our quality, quantity and cost requirements, technical specifications, or the inability to obtain alternative sources of these components on a timely basis or on terms acceptable to us, would create delays in production of our products or increase unit costs of production. Certain of the components contain proprietary products of our suppliers, or the processes used by our suppliers to manufacture these components are proprietary. If we are required to replace any of our suppliers, while we should be able to obtain comparable components from alternative suppliers at comparable costs, this would create a delay in production. If we experience such delays or our third party suppliers and vendors fail to supply us with components that meet our quality, quantity, or cost standards, we may lose our customers or be subject to product liability claims. Our applications require extensive commercial testing and will take long periods of time to commercialize.

Our nano-structured materials and associated applications need to undergo extensive testing before becoming commercial products. Consequently, the commercialization of our products could be delayed significantly or rendered impractical. Moreover, much of the commercial process testing will be dependent on the efforts of others. Any failure in a manufacturing step or an assembly process may render a given application or our nano-structured materials unsuitable or impractical for commercialization. Testing and required development of the manufacturing process will require the expenditure of funds and take time and effort.

We have not devoted any significant resources towards the marketing and sale of our products, we expect to face intense competition in the markets in which we do business, and we have and expect to continue to rely, to a significant extent, on the marketing and sales efforts of third parties that we do not control.

To date, we primarily focused on the sale of ConsERV™ products and, while we have sold increasing quantities of our products on a yearly basis, even after adding staff experienced in the industry we continue to experience a learning curve in the marketing and sale of products on a commercial basis. We expect that the marketing and sale of the ConsERV product will continue to be conducted by a combination of independent manufactures representatives, licensees, third-party strategic partners, distributors, or OEMs. Consequently, commercial success of our products will depend to a great extent on the efforts of others. We have and intend to continue to enter into additional strategic marketing and distribution agreements or other collaborative relationships to market and sell our nano-structured materials and value added products. However, we may not have identified or established appropriate relationships or be able to identify or establish appropriate relationships in the future. To the extent we have or will in the future enter into these types of relationships, we cannot assure you that the distributors, licensees or OEMs with which we have or will form relationships will focus adequate resources on selling our products or will be successful in selling them. In addition, our chosen third-party distributors, licensees or OEMs have or may require us to provide volume price discounts and other allowances, customize our products or provide other concessions which could reduce the potential profitability of these relationships. To the extent any strategic relationships that we have or may establish in the future

are exclusive, we may not be able to enter into other arrangements at a time when the distributor, licensee or OEM with which we have or will form a relationship is not successful in selling our products or has reduced its commitment to marketing our products. Failure to develop sufficient distribution and marketing relationships in our target markets will adversely affect our commercialization schedule and, to the extent we have entered or enter into such relationships, the failure of our distributors, licensees and other third parties to assist us with the marketing and distribution of our products or to meet their monetary obligations to us may adversely affect our financial condition and results of operations.

We will face intense competition in the markets of our product applications for our nano-structured materials and value-added products. We will compete directly with currently available products, some of which may be less expensive. The companies that make these other products may have established sales relationships and more name-brand recognition in the market than we do. In addition, some of those companies may have significantly greater financial, marketing, manufacturing and other resources.

Our future results could be harmed by economic, political, regulatory and other risks associated with international sales and operations.

We have begun and intend to continue marketing, distributing and servicing our products on an international basis and expect to derive a significant portion of our revenue in coming years from international sales. If we fail to successfully sell our products internationally, our ability to increase our future revenue and grow our business would be impaired. We have limited experience developing, and no experience manufacturing, our products to comply with the commercial, regulatory and legal requirements of international markets. Our success in those markets will depend on our ability to secure relationships with foreign resellers, establish and operate subsidiaries, or secure joint venture agreements and our ability to manufacture products that meet foreign regulatory and commercial requirements. We anticipate that it will be costly to establish, develop and maintain any international operations should they be required. Any international operations may not be profitable at a given time or from time to time. In addition, our planned international operations could be harmed by a variety of factors, including but not limited to:

- increased costs associated with maintaining international marketing efforts;
- compliance with potential United States Department of Commerce export controls;
- increases in duty rates or other adverse changes in tax laws;
- trade protection measures and import or export licensing requirements;
- fluctuations in currency exchange rates;
- political and economic conditions including but not limited to, any instability in foreign countries;
- diffi