INHALE THERAPEUTIC SYSTEMS INC
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Inhale Therapeutic Systems, Inc.

3,112,603 Shares of Common Stock

The selling security holders may sell up to 3,112,603 shares of common stock of Inhale Therapeutic Systems, Inc., a Delaware corporation.

Our common stock currently trades on the Nasdaq National Market under the symbol "INHL." The last reported sale price on November 1, 2001 was $16.64 per share.

Investing in our common stock involves a high degree of risk. Please carefully consider the "Risk Factors" beginning on page 6 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is November 9, 2001.

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We have authorized no one to give any information or to make any representations that are not contained in this prospectus. You should rely only on the information provided in this prospectus or incorporated by reference therein. You must not rely on any unauthorized information. You may not imply from the delivery of this prospectus, nor from any sale made under this prospectus, that our affairs are unchanged since the date of this prospectus or that the information contained in this prospectus is correct as of any time after the date of this prospectus.

ABOUT OUR BUSINESS

The following is a short summary of our business. You should carefully read the "Risk Factors" section of this prospectus and the documents incorporated by reference in this prospectus for more information on our business and the risks involved in investing in our stock. In addition to the historical information contained in this prospectus, this prospectus contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act that involve risks and uncertainties. Our actual results could differ materially from our expectations. Factors that could cause or contribute to such differences are discussed in "Risk Factors" beginning at page 6 of this prospectus and in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business" in our Annual Report on Form 10-K, as amended.

We develop advanced approaches for drug delivery and drug formulation for the biopharmaceutical industry. We are focused on two main opportunities: improved delivery of drug compounds and improved performance of drug powders and other formulations. To fulfill these needs, we are developing several technologies. The first enables inhalation for delivery of a range of drugs, including peptides, a protein derivative, proteins and small molecules, for treatment of systemic and respiratory diseases. A second technology uses a proprietary processing method known as supercritical fluids processing to develop drug formulations for multiple types of drug delivery. The third technology, advanced PEGylation, is designed to enhance the efficacy and performance of most major drug classes, including large sized molecular compounds, or macromolecules, such as peptides and proteins, smaller sized molecular compounds, and other drugs. We currently have or are developing 20 therapeutic drugs and one compound used as a diagnostic agent incorporating our technologies that are either approved for use, in the process of being reviewed for approval by the appropriate regulatory agency, or in clinical trials.

Inhaleables Technology

Historically, we have focused on the non-injectible delivery of peptides and proteins to the body through the lungs. Our inhaleables technology would enable such non-invasive delivery of certain large sized molecular compounds, now administered by injection. Currently there are approximately 35 of these macromolecule drugs marketed in the United States and about 120 other such drugs in clinical trials. Most of these drugs are currently delivered by frequent injection. Frequent injections are undesirable for numerous reasons including patient discomfort, inconvenience and risk of infection. The failure by patients to comply with current requirements for frequent injections can lead to increased incidence of medical complications and higher disease management costs. Alternatives to injection such as oral, nasal and transdermal, or "skin-patch," delivery approaches generally have been commercially unattractive due to the low natural amount of drug absorbed from the delivery site into the bloodstream relative to injection. As an alternative to the invasiveness of frequent injections, we believe our inhaleables technology could expand the market for macromolecule drug therapies and may enable new therapeutic uses of certain macromolecule drugs.

We are creating a proprietary inhaleable platform integrating several technologies including customized formulation of drug compounds, dry powder processing and packaging along with proprietary inhalation devices to enable efficient and consistent delivery of both macromolecule and small molecule drugs for systemic and local lung diseases. For specific drug products, we formulate and process bulk drugs supplied by collaborative partners into dry powders, that are packaged into individual dosing units referred to as "blisters." The blisters are designed to be loaded into our device, which patients then activate to inhale the aerosolized drugs that have been formulated to a particle size that permits deep lung delivery.

Our most advanced inhaleable program, which is sponsored by Pfizer Inc., is inhaleable insulin for treatment of Type 1 and Type 2 diabetes. Pfizer commenced dosing for its Phase III clinical trials on

this program in June 1999, and completed these trials in April 2001. Pfizer is currently in active discussions with the Food and Drug Administration regarding the requirements for a New Drug Application, or NDA, with respect to inhaleable insulin, and has indicated that it appears more data likely will be required, which may delay the filing of the NDA. In addition to our insulin program with Pfizer, we have active development collaborations involving our inhaleable technology with

- Biogen, Inc. for AVONEX®, an interferon beta drug used in the treatment of Multiple Sclerosis;
- Aventis Behring L.L.C. for an alpha-1 antitrypsin proteinase inhibitor being used for the treatment of hereditary emphysema; and

R.W. Johnson Pharmaceutical Research Institute and Janssen Research Foundation, subsidiaries of Johnson & Johnson, for small-molecule compounds to be mutually determined.

We also have early stage feasibility and research collaborations involving our inhaleables technology with several other companies and have tested approximately 12 inhaleable drugs in clinical trials. We are also developing next generation inhaleable powders and inhalation devices to further facilitate the delivery of small molecules and macromolecules both to, and through, the lung.

Advanced PEGylation Technology

In June 2001, we completed the acquisition of Shearwater Corporation for which we paid consideration of approximately $72.5 million in cash and an aggregate of approximately 4.0 million shares and options to purchase our common stock. Through our acquisition of Shearwater Corporation, we have extended our portfolio of technologies to include advanced PEGylation technology for enhancing the efficacy and performance of most major drug classes, including macromolecules such as peptides and proteins, small molecules and other drugs. Advanced PEGylation is a technology for the chemical attachment of polyethylene glycol (PEG) polymer chains to a broad range of drug substances. This results in effectively increasing the drug's molecular weight, which has the advantages of increasing drug circulation time in the bloodstream, improving drug solubility and stability, and reducing the triggering of immune responses.

Our PEGylation technology platform is currently being used in the manufacture and development of 14 drugs that are either currently in clinical trials or have either been approved or submitted for approval to the U.S. Food and Drug Administration through NDAs. The three products that have been submitted for approval to the FDA are:

PEG-interferon alpha-2a (PEGASYS®) being developed in collaboration with Hoffman-La Roche Ltd. for treatment of hepatitis-C;

PEG-Neupogen® being developed in collaboration with Amgen for treatment of neutropenia, a reduction in the white blood cells in patients receiving cancer chemotherapy; and

PEG-Visomant® being developed in collaboration with Pharmacia for treatment of acromegally, a condition caused by excessive growth hormone that can lead to severe systemic side effects and premature death.

Two products using our advanced PEGylation technology, including one therapeutic drug compound and one compound used as a diagnostic agent, have been approved for use by the FDA. In addition, we have supply and/or collaboration agreements with an additional nine pharmaceutical companies with respect to products in various stages of research, feasibility, and development including collaborations with Regeneron, Maxygen and United Therapeutics.

Supercritical Fluids Technology

In January 2001, we completed our acquisition of all the outstanding share capital of Bradford Particle Design, plc for which we paid consideration of approximately $20.0 million in cash and an aggregate of approximately 3.75 million shares and options to purchase our common stock. Through our acquisition of all the outstanding share capital of Bradford Particle Design, plc, we acquired additional technology and collaborations relating to the development of drug compounds using a technology known as supercritical fluids processing. This technique uses gases at elevated temperatures and pressures as alternative solvents and non-solvents in the formation of dry powder particles used in the manufacture of pharmaceuticals. This supercritical fluids processing technology is designed to reduce to a single step the current multi-stage powder manufacturing process for drug powders, while at the same time improving product purity and consistency. It offers an alternative to typical crystallization processes for many small molecules with the potential benefits of better control over particle size, form, structure and surface characteristics resulting in the potential for improved drug absorption, easier and more efficient formulation of drug compounds and lower manufacturing costs. We believe this technology can also be used in connection with technology designed for taste masking and controlled release of drug compounds.

We have feasibility or collaboration agreements with 18 biotechnology and pharmaceutical companies to apply our supercritical fluids technology to approximately 29 drugs. Most of our collaborations with respect to supercritical fluids technology are in the pre-clinical feasibility

stage with one product having entered into clinic trials in 2001. Collaborative partners utilizing our supercritical fluids technology include GlaxoSmithKline, Astra-Zeneca and Bristol Myers Squibb.

Partnering Strategy

We anticipate that any significant product that may be developed using our technologies would be commercialized with a collaborative partner and believe our partnering strategy will enable us to reduce the investment required to develop a large and diversified product portfolio. In a typical collaboration, our partner will provide the drug, fund clinical and formulation development and market the resulting commercial product. We will supply the drug delivery approach or drug formulation and receive revenues from drug compound manufacturing and other manufacturing activities, as well as royalties from sales of most commercial products. In addition, for products using our inhaleables technology, we will receive revenues from the supply of our device for the product along with any applicable drug processing. Prior to commercialization, we receive revenues from our partners for research and development and progress payments upon achievement of certain developmental milestones. We also receive revenues from catalogue sales of certain advanced PEGylation products. More than 70% of our clinical pipeline involves molecules that are already approved by the FDA in another delivery form. In addition to the 21 programs using our technologies that are in, or have completed, human trials, we have 48 drug projects using our various technologies that are in various stages of research, feasibility, and pre-clinical work, many of these in conjunction with partners.

The development of most of our products and technologies for drug delivery and drug formulation is in varying stages from preclinical trials through later-stages clinical trials, each of which presents significant risks to our efforts to commercialize our products. There are also significant risks relating to our partnering strategy at each of these varying stages of development. For the most part, our products have not yet been shown to be commercially feasible. These and other substantial risks are described in greater detail in Risk Factors beginning on page 6. You should carefully review these risks in considering an investment in our common stock.

Our principal executive offices are located at 150 Industrial Road, San Carlos, CA 94070. Our telephone number is (650) 631-3100. We maintain an Internet home page at www.inhale.com. The contents of our web page are not a part of this prospectus.

RISK FACTORS

In addition to the other information contained in this prospectus, investors should carefully consider the following risk factors in evaluating an investment in our stock.

If our drug delivery and formulation technologies are not commercially feasible, then our revenues and results of operations will be impacted negatively.

We are in an early stage of development. There is a risk that our drug delivery and drug formulation technologies will not be commercially feasible. Even if our drug delivery and formulation technologies are commercially feasible, they may not be commercially accepted across a range of large and small molecule drugs. We have tested 12 drug formulations using our inhaleables technology in humans, but many of our potential formulations have not been tested in clinical trials. We are currently using the advanced PEGylation technology platform we recently acquired through our acquisition of Shearwater in the development of 15 drugs. While we have incorporated our PEGylation technology in two products that the FDA approved for use and in three products that our partners have submitted for approval to the FDA through a NDA, many of the drug formulations with which we are incorporating this technology are in the early stages of feasibility testing or human clinical trials. We recently acquired our supercritical fluids technology through our acquisition of Bradford Particle Design, which is also primarily in an early stage of feasibility. This technology represents a new method of manufacturing drug particles and is still in research and development, with only one formulation having entered human clinical testing.

Other companies have tested many of the underlying drug compounds contained in our drug formulations in humans using alternative delivery routes or technologies. Our potential products require extensive research, development and pre-clinical and clinical testing. Our potential products also may involve lengthy regulatory reviews before they can be sold. We do not know if, and cannot assure that, any of our potential products will prove to be safe and effective, accomplish the objectives that we and our collaborative partners are seeking through the use of our technologies, meet regulatory standards or continue to meet such standards if already approved. There is a risk that we and our collaborative partners may not be able to produce any of our potential products in commercial quantities at acceptable cost or marketed successfully. Failure to achieve commercial feasibility, demonstrate safety, achieve clinical efficacy, obtain regulatory approval or, together with partners, successfully market products will negatively impact our revenues and results of operations.

If our research and development efforts are delayed or unsuccessful, then we may be delayed or unsuccessful in commercializing our products and our business will suffer.

Except for our products that have already been approved by the FDA or submitted for approval by the FDA, our product candidates are still in research and development, including preclinical testing and clinical trials. Preclinical testing and clinical trials are long, expensive and uncertain processes. It may take us or our collaborators several years to complete this testing, and failure can occur at any stage in the process. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. A number of companies in the pharmaceutical industry, including biotechnology companies, have suffered significant setbacks in later stage clinical trials, even after promising results in earlier trials.

Any clinical trial may fail to produce results satisfactory to us, our collaborative partners or the FDA. Preclinical and clinical data can be interpreted in different ways, which could delay, limit or prevent regulatory approval or commercialization. Negative or inconclusive results or adverse medical events during a clinical trial could cause a clinical trial to be repeated or a program to be terminated. We typically rely on collaborative partners and third-party clinical investigators to conduct our clinical trials and, as a result, we may face additional delaying factors outside our control.

We do not know if any of our research and development efforts, including preclinical testing or clinical trials will adhere to our planned schedules or be completed on a timely basis or at all. Typically, there is a high rate of attrition for product candidates in preclinical and clinical trials. If our research and development efforts are unsuccessful or substantially delayed, our results of operations will be adversely affected.

If our drug delivery and formulation technologies are not efficient, then our products may not be competitive.

We may not be able to achieve the total system efficiency needed to be competitive with alternative routes of delivery or formulation technologies. We determine total system efficiency by the amount of drug loss during manufacture, in the delivery device, in reaching the site at which the drug is absorbed into the bloodstream, and during absorption from that site into the bloodstream.

Deep lung bioavailability is the percentage of a drug that is absorbed into the bloodstream when that drug is delivered directly to the lungs as compared to when the drug is delivered by injection. Relative bioavailability is the initial screen for whether deep lung delivery using our inhaleables technology of any drug is commercially feasible. We would not consider a drug to be a good candidate for development and commercialization using our inhaleables technology if drug loss is excessive at any one stage or cumulatively in the manufacturing and delivery process.

Our ability to efficiently attach PEG polymer chains to a drug molecule is the initial screen as to whether drug formulations using our advanced PEGylation technology are commercially feasible. We would not consider a drug formulation using our advanced PEGylation technology if we could not efficiently attach a PEG polymer chain to such drug without destroying or impairing the drug's activity.

For our supercritical fluids technology, solubility characteristics of a drug and the solvents which may be incorporated in the manufacturing process provide the initial screen for whether drug formulations using this technology are commercially feasible. We would not consider a drug to be a good candidate for this technology if its solubility characteristics were such that the application of our technology results in very low efficiency in manufacturing of drug powders.

If our drug formulations are not stable, then we will not be able to commercialize our products.

We may not be able to identify and produce powdered or other formulations of drugs that retain the physical and chemical properties needed to work effectively with our delivery device for deep lung delivery using our inhaleables technology or through other methods of drug delivery using our other formulation technologies. Formulation stability is the physical and chemical stability of the drug over time and under various storage, shipping and usage conditions. Formulation stability will vary with each drug formulation and the type and amount of ingredients that are used in the formulation. Since our drug formulation technology is new and largely unproven, we do not know if our drug formulations will retain the physical and chemical properties of injected drugs. Problems with powdered drug stability in particular would negatively impact our ability to develop and market products using our drug delivery and formulation technologies or obtain regulatory approval of such products.

If our drug delivery and formulation technologies are not safe, then we may not obtain regulatory approval of our products or adequately develop or market our products.

We may not be able to prove potential products using our drug delivery and formulation technologies to be safe. Our products require lengthy laboratory, animal and human testing. Most of our products are in preclinical testing or the early stage of human testing. Since most of our

products are in early stage of testing and have not completed clinical trials we cannot be certain that these products, and our technology that developed these products, are safe or will not produce unacceptable adverse side effects. The safety of our formulations will vary with each drug and the ingredients used in

our formulation. If we find that any product is not safe, we will not be able to commercialize the product.

If our drug delivery and formulation technologies do not provide consistent doses of medicine, then we will not be able to develop and commercialize our products.

We may not be able to provide reproducible dosing of stable formulations of drug compounds. Reproducible dosing is the ability to deliver a consistent and predictable amount of drug into the bloodstream over time both for a single patient and across patient groups. Reproducible dosing of drugs using our inhaleables technology requires the development of:

- an inhalation or other device that consistently delivers predictable amounts of dry powder to the deep lung;
- accurate unit dose packaging of dry powder; and
- moisture resistant packaging.

Development of appropriate delivery devices, accuracy in measurement of doses, and appropriate packaging may also effect our ability to provide reproducible dosing of drugs using our other delivery and formulation technologies. Since all of our technologies are still in development and, for the most part, are yet to be commercialized, we cannot be certain that we will be able to develop reproducible dosing of any potential product. The failure to do so means that we would not consider such a product as a good candidate for development and commercialization.

If our collaborative partners that we depend on to obtain regulatory approvals and commercialization of our products are not successful, and if such collaboration fails, then our product development or commercialization of our products may be delayed or unsuccessful.

Because we are in the business of developing technology for delivering drugs to the lungs, producing improved drug formulations for other routes of delivery and licensing these technologies to companies that make and sell drugs, we do not have the people and other resources to do the following things:

- make bulk drugs to be used as medicines;
- design and carry out large scale clinical studies;
- prepare and file documents necessary to obtain government approval to sell a given drug product; and
- market and sell our products when and if they are approved.

When we sign a collaborative development agreement or license agreement to develop a product with a drug company, the drug company agrees to do some or all of the things described above.

Reliance on collaborative relationships poses a number of risks, including:

- we will not be able to control whether our corporate partners will devote sufficient resources to our programs or products;

disputes may arise in the future with respect to the ownership of rights to technology developed with corporate partners;

disagreements with corporate partners could lead to delays in or termination of the research, development or commercialization of product candidates, or result in litigation or arbitration;

contracts with our corporate partners may fail to provide significant protection or may fail to be effectively enforced if one of these partners fails to perform;

corporate partners have considerable discretion in electing whether to pursue the development of any additional products and may pursue alternative technologies or products either on their own or in collaboration with our competitors;

corporate partners with marketing rights may choose to devote fewer resources to the marketing of our products than they do to products of their own development; and

there are risks related to the ability of our distributors and corporate partners to pay us.

Given these risks, there is a great deal of uncertainty regarding the success of our current and future collaborative efforts. In October 2001, Eli Lilly and Company, our collaborative partner with respect to a Phase I program for an inhaleable product for the treatment of osteoporosis, Fortéo, notified us that the program will not be funded in 2002. Lilly further informed us that other than on-going stability work, additional activities with respect to the program will be suspended. If the collaborative program with Lilly is not reinitiated, or other significant collaborations are suspended or terminated, our ability to successfully commercialize certain of our proposed products would be significantly and negatively impacted. If these efforts fail, our product development or commercialization of products could be delayed.

If we fail to establish future successful collaborative relationships, then our financial results may suffer and our product development efforts may be delayed or unsuccessful.

We intend to seek future collaborative relationships with corporate partners to fund some of our research and development expenses and to develop and commercialize potential products. Further, we anticipate that the timing of drug development programs under existing collaborative agreements with our corporate partners will continue to affect our revenues from such agreements. We may not be able to negotiate acceptable collaborative arrangements in the future, and any arrangements we do negotiate may not be successful. If we fail to establish additional collaborative relationships, we will be required to undertake research, development, marketing and manufacturing of our proposed products at our own expense or discontinue or reduce these activities.

If we do not obtain regulatory approval for our products on a timely basis, then our revenues and results of operations may be affected negatively.

There is a risk that we will not obtain regulatory approval for our unapproved products on a timely basis, or at all. Our unapproved products must undergo rigorous animal and human testing and an extensive FDA mandated or equivalent foreign authorities review process. This process generally takes a number of years and requires the expenditure of substantial resources and the time required for completing such testing and obtaining such approvals is uncertain. The FDA and other U.S. and foreign regulatory agencies also have substantial discretion to terminate clinical trials, require additional testing, delay or withhold registration and marketing approval and mandate product withdrawals. The FDA has approved two products using our advanced PEGylation technology for specific use in the U.S. In addition, our partners have submitted for approval to the FDA three NDAs using our PEGylation technology and we plan to manufacture and market other potential products. Even though we have obtained regulatory approval for two products, these products and our manufacturing processes are subject to continued review by the FDA and other regulatory authorities. Even if we receive regulatory approval of a product, the approval may limit the indicated uses for which we may market our product. In addition, our marketed product, our manufacturing facilities and we, as the manufacturer in certain instances, will be subject to continual review and periodic inspections. Later discovery from such review and inspection of previously unknown problems may result in restrictions on our product or on us, including withdrawal of our products from the market. The failure to obtain timely regulatory approval of our products, any product marketing limitations or a product withdrawal would negatively impact our revenues and results of operations.

In addition, we may encounter delays or rejections based upon changes in FDA policy, including policy relating to commercial good manufacturing practice compliance, or "cGMP," during the period of product development. We may encounter similar delays in other countries.

In July 2001, Pfizer, our collaborative partner in the development of inhaleable insulin for the treatment of Type 1 and Type 2 diabetes announced that based upon its active discussions with the FDA regarding the requirements for a NDA for this product, its schedule for the filing of an NDA may be delayed beyond its original proposed schedule. The delay in the filing of this NDA may result in a delay in the approval of the NDA by the FDA, if such approval is received at all. Any material delay in the regulatory approval of this product or failure to receive regulatory approval of this product would negatively impact our results of operations.

If our technologies cannot be integrated successfully to bring products to market, then our ability to develop, obtain approval of or market our products may be delayed or unsuccessful.

We may not be able to integrate all of the relevant technologies to provide complete drug delivery and formulation systems. In particular, our development of drugs using our inhaleables technology relies upon several different but related technologies:

dry powder formulations;

dry powder processing technology;

dry powder packaging technology; and

deep lung delivery devices.

Our other drug delivery and formulation development efforts may face similar challenges relating to the integration of drug formulation, processing, packaging and delivery device technologies. At the same time we must:

establish collaborations with partners;

perform laboratory and clinical testing of potential products; and

scale-up our manufacturing processes.

We must accomplish all of these steps without delaying any aspect of technology development. Any delay in one component of product or business development could delay our ability to develop, obtain approval of or market products using our delivery and formulation technologies.

If we are not able to manufacture our products in commercially feasible quantities, then we will not be able to successfully commercialize our products.

Inhaleables Technology

Powder Processing. We have no experience manufacturing powder processing products for commercial purposes. With respect to drugs using our inhaleables technology, we have only performed powder processing on the scale needed for testing formulations, and for early stage and larger clinical trials. We may encounter manufacturing and control problems as we attempt to scale-up powder processing facilities. We may not be able to achieve such scale-up in a timely manner or at a commercially reasonable cost, if at all. Our failure to solve any of these problems could delay or prevent some late stage clinical testing and commercialization of our products and could negatively impact our revenues and results of operations.

To date, we rely primarily on one particular method of powder processing. There is a risk that this technology will not work with all drugs or that the cost of drug production will preclude the commercial viability of certain drugs. Additionally, there is a risk that any alternative powder

processing

methods we may pursue will not be commercially practical for aerosol drugs or that we will not have, or be able to acquire the rights to use, such alternative methods.

Powder Packaging. Our fine particle powders and small quantity packaging utilized for drugs using our inhaleables technology require special handling. We have designed and qualified automated filling equipment for small and moderate quantity packaging of fine powders. We face significant technical challenges in scaling-up an automated filling system that can handle the small dose and particle sizes of our powders in commercial quantities. There is a risk that we will not be able to scale-up our automated filling equipment in a timely manner or at commercially reasonable costs. Any failure or delay in such scale-up would delay product development or bar commercialization of products using our inhaleables technology and would negatively impact our revenues and results of operations.

Inhalation Device. We face many technical challenges in further developing our inhalation devices to work with a broad range of drugs, to produce such a device in sufficient quantities and to adapt the device to different powder formulations. In addition, we are attempting to develop a smaller inhalation device, which presents particular technical challenges. There is a risk that we will not successfully achieve any of these challenges. Our failure to overcome any of these challenges would negatively impact our revenues and results of operations.

For late stage clinical trials and initial commercial production, we intend to use one or more contract manufacturers to produce our drug delivery devices. There is a risk that we will not be able to maintain arrangements with our contract manufacturers or effectively scale-up production of our drug delivery devices through contract manufacturers. Our failure to do so would negatively impact our revenues and results of operations. Because our manufacturing processes and those of our contract manufactures are very complex and subject to lengthy governmental approval processes, alternative qualified production sources or capacity may not be available on a timely basis or at all. Disruptions or delays in our manufacturing processes or those of our contract manufacturers for existing or new products could result in increased costs, loss of revenues or market share, or damage to our reputation.

Other Drug Delivery and Formulation Technologies

We recently acquired our advanced PEGylation and supercritical fluids technologies through our acquisitions of Shearwater and Bradford Particle Design, respectively. Except for our approved products or products pending approval using our advanced PEGylation technology, all of the drug formulations with which we are incorporating these technologies are in the early stages of feasibility testing or human clinical trials. Because our existing facilities are not large enough for most commercial scale manufacturing, we may not be able to scale-up to large clinical trials or commercial manufacturing for products incorporating either of these technologies in a timely manner or at a commercially reasonable cost, if at all. Our failure to solve any of these problems could delay or prevent late stage clinical testing and commercialization of our products and could negatively impact our revenues and results of operations.

We depend on sole or exclusive suppliers for our inhalation device, bulk drugs and PEG polymer chains and if such suppliers fail to provide when required, then our product development efforts may be delayed or unsuccessful.

We have agreed to subcontract the manufacture of our inhalation device before commercial production of our first inhaleable technology product. We have identified contract manufacturers that we believe have the technical capabilities and production capacity to manufacture our inhalation device and which can meet the requirements of cGMP. We are not certain that we will be able to maintain satisfactory contract manufacturing on commercially acceptable terms, if at all. Our dependence on third parties for the manufacture of our inhalation devices may negatively impact our cost of goods and

our ability to develop and commercialize products using our inhaleables technology on a timely and competitive basis.

We obtain the bulk drugs we use to manufacture the drugs using our drug delivery and formulation technologies from sole or exclusive sources of supply. For example, with respect to our source of bulk insulin, we have entered into a collaborative agreement with Pfizer which has, in turn, entered into an agreement with Aventis to manufacture biosynthetic recombinant insulin. Under the terms of their agreement, Pfizer and Aventis agreed to construct a jointly owned manufacturing plant in Frankfurt, Germany. Until its completion, Pfizer will provide us with insulin from Aventis' existing plant.

We have also entered into an exclusive agreement with one supplier for a significant portion of the PEG polymer chains we use in our products that incorporate PEGylation technology. NOF Corporation is our predominate supplier of pharmaceutical grade PEGylation materials pursuant to an exclusive supply agreement with NOF that provides for the supply of these materials. If our sole or exclusive source suppliers fail to provide either bulk drugs or PEGylation materials in sufficient quantities when required, our revenues and results of operations will be negatively impacted.

If the market does not accept products using our drug delivery and formulation technologies, then our revenues and results of operations will be adversely affected.

The commercial success of our potential products depends upon market acceptance by health care providers, third-party payors like health insurance companies and Medicare and patients. Our products under development use a new method of drug delivery or drug formulation and there is a risk that our potential products will not be accepted by the market. Market acceptance will depend on many factors, including:

the safety and efficacy of products demonstrated in our clinical trials;

favorable regulatory approval and product labeling;

the frequency of product use;

the availability of third-party reimbursement;

the availability of alternative technologies; and

the price of our products relative to alternative technologies.

There is a risk that health care providers, patients or third-party payors will not accept product using our drug delivery and formulation technologies. If the market does not accept our potential products, our revenues and results of operations would be significantly and negatively impacted.

If our products are not cost effective, then government and private insurance plans may not pay for them.

In both domestic and foreign markets, sales of our products under development will depend in part upon the availability of reimbursement from third-party payors, such as government health administration authorities, managed care providers, private health insurers and other organizations. In addition, such third-party payors are increasingly challenging the price and cost effectiveness of medical products and services. Significant uncertainty exists as to the reimbursement status of newly approved health care products. Legislation and regulations affecting the pricing of pharmaceuticals may change before regulatory agencies approve our proposed products for marketing. Adoption of such legislation and regulations could further limit reimbursement for medical products. A government or third-party payor decision to not provide adequate coverage and reimbursements for our products would limit market acceptance of such products.

If our competitors develop and sell better drug delivery and formulation technologies, then our products or technologies may be uncompetitive or obsolete and our revenues and results of operations will be adversely affected.

We are aware of other companies engaged in developing and commercializing pulmonary drug delivery and formulation systems, as well as drug delivery and formulation technology similar to the supercritical fluids technology and the advanced PEGylation technology we are developing through our acquisitions of Bradford Particle Design and Shearwater, respectively. Some of our competitors with regard to inhaleables technology include AeroGen, Inc., Alkermes, Inc. and Aradigm Corporation. Aerogen and Aradigm are working on liquid drug delivery systems, and Alkermes is working on a dry powder delivery system. Some of our competitors with regard to advanced PEGylation technology include Enzon, Inc. and Valentis, Inc., as well as several pharmaceutical and biotechnology companies with in-house PEGylation expertise. Some of our competitors with regard to supercritical fluids technology include Alkermes, Inc., Battelle Memorial Institute, AstraZeneca PLC, Ethypharm SA, Ferro Corp., Lavipharm SA, Phasex Corporation and Rx Connectics. Some of these companies license or provide the technology to other companies, while others are developing the technology for internal use. Many of these companies have greater research and development capabilities, experience, manufacturing, marketing, financial and managerial resources than we do and represent

significant competition for us. Acquisitions of or collaborations with competing drug delivery companies by large pharmaceutical companies could enhance our competitors' financial, marketing and other resources. Accordingly, our competitors may succeed in developing competing technologies, obtaining regulatory approval for products or gaining market acceptance before us. Developments by others could make our products or technologies uncompetitive or obsolete. Our competitors may introduce products or processes competitive with or superior to ours.

If any of our patents are invalid or pending patents are not valid, then we may lose key intellectual property right protection. If our products infringe on third-party's rights, then we will suffer adverse effects on our ability to develop and commercialize products as well as our revenues and results of operations.

We have filed patent applications covering certain aspects of our inhalation device, powder processing technology, powder formulations and deep lung route of delivery for certain molecules as well as for our other drug delivery and formulation technologies, and we plan to file additional patent applications. We currently have 219 issued U.S. and foreign patents that cover certain aspects of our technology and we have a number of patent applications pending. There is a risk that many of the patents applied for will not issue, or that any patents that issue or have issued will not be valid and enforceable. Enforcing our patent rights would be time consuming and costly.

Our access or our partners' access to the drugs to be formulated using our technologies will affect our ability to develop and commercialize our technology. Many drugs, including powder formulations of certain drugs that are presently under development by us, and our drug formulation technologies are subject to issued and pending U.S. and foreign patents that may be owned by competitors. We know that there are issued patents and pending patent applications relating to the formulation and delivery of delivery of large and small molecule drugs, including several for which we are developing deep lung or other delivery formulations using our various technologies. This situation is highly complex, and the ability of any one company, including us, to commercialize a particular drug is unpredictable.

At this time, we are involved in an outstanding lawsuit with Enzon, Inc. whereby Enzon has alleged infringement of its patents related to branched polymer conjugates. In a complaint originally filed in December 1998 and amended in December 2000, Enzon filed suit against Shearwater asserting infringement of certain Enzon patents by certain Shearwater PEG-2 reagents and certain other advanced PEGylation products. Enzon is seeking compensatory and treble damages, attorneys' fees and permanent injunction against infringement of its two patents. To date, Enzon has not specified an

amount of damages it is seeking with respect to its claims. The litigation with respect to this matter has been bifurcated, such that damages, if any, will be determined once a judgment has been rendered with respect to the merits of Enzon's claims. Whether or not this litigation is determined in our favor, this action could adversely affect the value of our technology portfolio and have a material impact on our existing collaborative development agreements. If we are unsuccessful in defending this or other actions, we also may be subject to indemnification obligations with respect to certain of our collaborative partners. If we lose key intellectual property right protections, our business, financial condition and results of operations would be materially adversely affected.

We intend generally to rely on the ability of our partners to provide access to the drugs that we formulate for deep lung and other forms of delivery. There is a risk that our partners will not be able to provide access to such drug candidates. Even if our partners provide such access, there is a risk that third parties will accuse, and possibly a court or a governmental agency will determine, our partners or us to be infringing a third-party's patent rights, and we will be prohibited from working with the drug or be found liable for damages that may not be subject to indemnification. Any such restriction on access to drug candidates or liability for damages would negatively impact our revenues and results of operations.

We may incur material litigation costs which may adversely affect our business and results of operations.

Substantially all of the litigation to which we are currently subjected to or have been subjected to relates to our patent and intellectual property rights. In particular, we are involved in litigation with Enzon that if we are unsuccessful may have a material adverse effect on the value of our advanced PEGylation technology and trigger indemnification obligations with respect to certain of our collaborative partners. In addition, Enzon is seeking compensatory and treble damages, attorneys' fees and permanent injunction against infringement of certain of its patents, any or all of which could have a material adverse effect on our financial condition. To date, Enzon has not specified an amount of damages it is seeking with respect to its claims. The litigation with respect to this matter has been bifurcated, such that damages, if any, will be determined once a judgment has been rendered with respect to the merits of Enzon's claims. We cannot predict with certainty the eventual outcome of this or any other pending litigation, and we might have to incur substantial expense in defending this or future lawsuits or indemnifying third parties with respect to the results of such litigation.

If earthquakes and other catastrophic events strike, our business may be negatively affected.

Our corporate headquarters, including most of our research and development operations, are located in the Silicon Valley area of Northern California, a region known for seismic activity. A significant natural disaster such as an earthquake could have a material adverse impact on our business, operating results, and financial condition.

The recent energy crisis in California could disrupt our business and the businesses of our suppliers, contract manufacturers and collaborative partners, and could increase our expenses.

In recent months, the western United States (and California in particular) has experienced repeated episodes of diminished electrical power supply, and we anticipate that this situation could continue to worsen in the near future. As a result of these episodes, certain of our operations or facilities may continue to be subject to "rolling blackouts" or other unscheduled interruptions of electrical power. The prospect of such unscheduled interruptions may continue for the foreseeable future, and we are unable to predict their occurrence or duration. Certain of our suppliers, contract manufacturers and collaborative partners are also located in this area and their operations may also be materially and adversely affected by such interruptions, which in turn could have a material adverse effect on our business or results of operations.

Investors should be aware of industry-wide risks which are applicable to us and may affect our revenues and results of operations.

In addition to the risks associated specifically with Inhale described above, investors should also be aware of general risks associated with drug development and the pharmaceutical industry. These include, but are not limited to:

changes in and compliance with government regulations;

handling of hazardous materials;

hiring and retaining qualified people; and

insuring against product liability claims.

If we fail to manage our growth effectively, our business may suffer.

Our ability to commercialize our products, achieve our expansion objectives, manage our growth effectively and satisfy our commitments under our collaboration agreements depends on a variety of factors, all of which must be successfully managed. Key factors include our ability to develop products internally, enter into strategic partnerships with collaborators, attract and retain skilled employees and effectively expand our internal organization to accommodate anticipated growth including integration of any potential businesses that we may acquire. If we are unable to manage some or all of these factors effectively, our business could grow too slowly or too quickly to be successfully sustained, thereby resulting in material adverse effects on our business, financial condition and results of operations.

If we do not effectively integrate personnel and operations relating to our acquisitions of Bradford Particle Design and Shearwater, our business and management may suffer disruptions.

Our acquisition of Bradford Particle Design and Shearwater may present unique risks related to our business. We may not be able to successfully assimilate the additional personnel, operations, acquired technology and products into our business. In particular, we need to assimilate and retain key management, research and engineering personnel. Key personnel from acquired companies such as Bradford Particle Design and Shearwater often decide to pursue other opportunities. In addition, there may be complications if we attempt to integrate any of the technology acquired from these companies with our other technologies, and it is uncertain whether we may accomplish this easily or at all. These integration difficulties could disrupt our ongoing business, distract management and employees or increase expenses. Acquisitions are inherently risky, and we may also face unexpected costs, which may adversely affect operating results in any quarter. Additionally, because Bradford Particle Design is a UK company, we will face additional risks related to cross-border acquisitions and international operations, including foreign legal and regulatory restrictions and potential economic instability. Due diligence conducted in connection with either acquisition may not uncover all the potential problems or liabilities we may have assumed in these transactions. Any of these risks could have a significant impact on our ability to continue our research and development efforts on a competitive and timely basis.

We cannot predict the impact of recent actions and comments by the Securities and Exchange Commission regarding valuation methodologies related to business combinations and as such, we may need to restate our financial statements which may alter our operating results.

The Securities and Exchange Commission has been reviewing registrants' valuation methodologies of in-process research and development related to business combinations. The valuations we placed on Bradford Particle Design and Shearwater included certain assumptions about the technology, development and future operations of these businesses. These assumptions also determined in large part how we reflected these acquisitions in our financial statements. While we believe that we are in compliance with all of the existing rules and related guidance applicable to our business operations, if

the SEC does not agree with our valuation methodologies, or if the assumptions taken at the time of the valuation are not achieved, we may be required to restate our financial statements. In addition, the SEC may change these rules or issue new guidance applicable to our business in the future. There can be no assurance that the SEC will not seek to reduce the amount of in-process research and development previously expensed by us or require us to make an adjustment related to our valuation assumptions. This would result in the restatement of our previously filed financial statements and could have a material adverse effect on our operating results and financial condition for periods subsequent to the acquisitions.

If we acquire additional companies, products or technologies, we may face risks similar to those faced in our other acquisitions.

We may continue to acquire or make investments in complementary companies, products or technologies. We may not realize the anticipated benefits of any other acquisition or investment. If we acquire another company, we will likely face some or all of the same risks, uncertainties, earnings and disruptions as discussed above with respect to the Bradford Particle Design and Shearwater acquisitions. We may face risks relating to difficult integrations of personnel, technology and operations, uncertainty whether any integration will be successful and whether earnings will be negatively affected, and potential distractions to our management with respect to these acquisitions. In addition, our earnings may suffer because of acquisition-related costs.

We expect to continue to lose money for the next few years and may not reach profitability if our products do not generate sufficient revenue.

We have never been profitable and, through June 30, 2001, we have an accumulated deficit of approximately $379 million. We expect to continue to incur substantial and potentially increasing losses over at least the next few years as we expand our research and development efforts, testing activities and manufacturing operations, and as we further expand our late stage clinical and early commercial production facility. All of our potential products are in the early stages of development except for our insulin collaboration using our inhaleables technology and our two approved products and three products pending approval using our PEGylation technology. Except for our approved PEGylation technology products, we have generated no revenues from approved product sales. Our revenues to date have consisted primarily of payments under short-term research and feasibility agreements and development contracts. To achieve and sustain profitable operations, we must, alone or with others, successfully develop, obtain regulatory approval for, manufacture, introduce, market and sell products using our deep lung and other drug delivery systems. There is a risk that we will not generate sufficient product or contract research revenue to become profitable or to sustain profitability.

If we cannot raise additional capital our financial condition may suffer.

We anticipate that our existing capital resources will enable us to maintain currently planned operations through at least the next 30 months. However, this expectation is based on our current operating plan, which may change as a result of certain factors, and may result in additional funding requirements sooner than anticipated. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of such securities could result in dilution to our stockholders.

We have no material credit facility or other material committed sources of capital. To the extent operating and capital resources are insufficient to meet future requirements, we will have to raise additional funds to continue the development and commercialization of our technologies. Such funds may not be available on favorable terms, or at all. In particular, our substantial leverage may limit our

ability to obtain additional financing. If adequate funds are not available on reasonable terms, we may be required to curtail operations significantly or to obtain funds by entering into financing, supply or collaboration agreements on unattractive terms. Our inability to raise capital could negatively impact our business.

We expect our stock price to remain volatile.

Our stock price is volatile. In the last twelve-month period ending November 1, 2001, based on closing prices on the Nasdaq National Market, our stock price ranged from $11.01 to $55.1875. We expect it to remain volatile. A variety of factors may have a significant effect on the market price of our common stock, including:

- fluctuations in our operating results;
- announcements of technological innovations or new therapeutic products;
- announcement or termination of collaborative relationships by Inhale or our competitors;
- governmental regulation;
- clinical trial results or product development delays;
- developments in patent or other proprietary rights;
- public concern as to the safety of drug formulations developed by Inhale or others; and
- general market conditions.

Any litigation brought against us as a result of this volatility could result in substantial costs and a diversion of our management's attention and resources, which could negatively impact our financial condition, revenues and results of operations.

If we do not generate sufficient cash flow through increased revenues or raising additional capital, then we may not be able to meet our debt obligations.

As of June 30, 2001, we had approximately $335 million in long-term obligations, which represents an increase of approximately $14 million from the fiscal year-ended December 31, 2000. This increased indebtedness has and will continue to impact us by:

- increasing our interest expense and related debt service costs;
- making it more difficult to obtain additional financing; and
- constraining our ability to react quickly in an unfavorable economic climate.

Currently, we are not generating sufficient cash flow to satisfy the annual debt service payments on our outstanding subordinated convertible debentures and subordinated convertible notes. This may require us to use a portion of the proceeds from the sales of these securities to pay interest or borrow additional funds or sell additional equity to meet our debt service obligations. If we are unable to satisfy our debt service requirements, substantial liquidity problems could result, which would negatively impact our future prospects. As of June 30, 2001, we had cash and short-term investments valued at approximately $386 million.

Anti-takeover provisions in our charter documents and under Delaware law may make it more difficult to remove our management. Further, these provisions may make it more difficult to acquire a large portion of our securities, to initiate a tender offer or a proxy contest or to acquire us, even though such events may be beneficial to our stockholders.

Provisions of our certificate of incorporation and bylaws could make it more difficult for a third party to remove our management. Further, these provisions may make it more difficult to acquire a large portion of our securities, to initiate a tender offer or a proxy contest or acquire us, even if doing so would benefit our stockholders. Among other things, these provisions:

- authorize the issuance of "blank check" preferred stock that could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt; and
- limit who may call a special meeting of stockholders.

On June 1, 2001, our board of directors adopted a preferred share purchase rights plan, commonly known as a "poison pill." The provisions described above, our preferred share purchase rights plan and provisions of the Delaware General Corporation Law relating to business combinations with interested stockholders may discourage, delay or prevent a third party from removing our management. Further, they may discourage, delay or prevent a third party from acquiring a large portion of our securities, initiating a tender offer or proxy contest or acquiring us, even if our stockholders might receive a premium for their shares in the acquisition over then current market prices.

This prospectus includes forward-looking statements and if these statements are incorrect or inaccurate, our actual results may differ.

This prospectus includes "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. All statements other than statements of historical fact are "forward-looking statements" for purposes of these provisions, including any projections of earnings, revenues or other financial items, any statements of the plans and objectives of management for future operations, any statements concerning proposed new products or services, any statements regarding future economic conditions or performance and any statement of assumptions underlying any of the foregoing. In some cases, forward-looking statements can be identified by the use of terminology such as "may," "will," "expects," "plans," "anticipates," "estimates," "potential," or "continue" or the negative thereof or other comparable terminology. Although we believe that the expectations reflected in the forward-looking statements contained herein are reasonable, there can be no assurance that such expectations or any of the forward-looking statements will prove to be correct and actual results could differ materially from those projected or assumed in the forward-looking statements. Our future financial condition and results of operations, as well as any forward-looking statements, are subject to inherent risks and uncertainties, including but not limited to the risk factors set forth below and for the reasons described elsewhere in this prospectus. All forward-looking statements and reasons why results may differ included in this prospectus are made as of the date hereof and we do not intend to update any forward-looking statements except as required by law or applicable regulations.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares of common stock offered hereby. See "Selling Security Holders."

SELLING SECURITY HOLDERS

In connection with our acquisition of Shearwater Corporation completed in June 2001, we issued to all of the selling security holders shares of our common stock, and we agreed to register these shares of common stock for resale. This Registration Statement may be suspended if we determine, in good faith, that it is in the best interest of us and our stockholders to defer disclosure of non-public information until such information has reached a more advanced state. During a period of suspension, sales under this Registration Statement will be suspended. Our obligation to maintain the effectiveness of this registration statement shall cease upon the earlier of June 29, 2002 or the date on which all the shares of common stock covered by this Registration Statement have been sold to the public pursuant to this Registration Statement. Our registration of the shares of common stock does not necessarily mean the selling security holders will sell all or any of the shares.

The following table sets forth information known to us with respect to the number of shares of our common stock beneficially owned as of October 31, 2001 by each selling security holder.

The information provided in the table below with respect to each selling security holder has been obtained from that selling security holder. Except as otherwise disclosed below, none of the selling security holders has, or within the past three years has had, any position, office or other material relationship with us, except for J. Milton Harris, who serves as President of our wholly owned subsidiary, Square Acquisition Corp., which continues as the surviving corporation following its merger with and into Shearwater. Because the selling security holders may sell all or some portion of the shares of common stock beneficially owned by them, we cannot estimate either the number or percentage of shares of common stock that will be beneficially owned by the selling security holders after this offering. In addition, the selling security holders may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time or from time to time since the date on which they provided the information regarding the shares of common stock beneficially owned by them, all or a portion of the shares of common stock beneficially owned by them in transactions exempt from the registration requirements of the Securities Act of 1933.

The number of shares beneficially owned by each selling security holder is determined under Rule 13d-3 promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended, and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as indicated, and subject to community property laws where applicable and the limitations discussed in this "Selling Security Holders" section, the persons named have sole voting and investment power with respect to all shares shown as beneficially owned by them. Percentage of

beneficial ownership is based on 54,913,247 shares of common stock outstanding as of October 31, 2001.

	Shares Beneficially Owned Prior to Offering			Shares Beneficially Owned After Offering	
Name	Number	Percent	Shares Being Offered (1)	Number	Percent
J. Milton Harris(2)	2,561,409	4.46%	2,561,409		
James R. Hudson, Jr.	241,974	*	154,308		
Robert Randall Key	7,736	*	7,736		
Lonnie S. McMillian (3)	389,150	*	389,150		
Puffinus, L.P.	1,303,911	2.32	1,303,911		
Stoneway Enterprises, LLC	232,046	*	232,046		

(1) Shares not being offered include shares issuable upon exercise of outstanding options.

(2) Includes 1,257,498 shares held by J. Milton Harris and 1,303,911 shares held by Puffinus, L.P. Mr. Harris is a limited partner of Puffinus, L.P. and the President of Puffinus, Inc., the general partner of Puffinus L.P. Mr. Harris disclaims beneficial ownership of these shares, except to the pecuniary interest thereof.

(3) Represents 157,104 shares held by Lonnie S. McMillian and 232,046 shares held by Stoneway Enterprises, LLC. Mr. McMillian is a member and a manager of Stoneway Enterprises LLC. Mr. McMillian disclaims beneficial ownership of these shares, except to the pecuniary interest thereof.

* Represents beneficial ownership of less than one percent (1%).

The selling security holders acquired the common stock from us in a private transaction on June 29, 2001. All of the shares of common stock purchased by the selling security holders were "restricted securities" under the Securities Act prior to this registration.

PLAN OF DISTRIBUTION

The selling security holders and their successors, including their transferees, pledgees or donees or their successors, may sell the shares of common stock directly to purchasers or through underwriters, broker-dealers or agents, who may receive compensation in the form of discounts, concessions or commissions from the selling security holders or the purchasers. These discounts, concessions or commissions as to any

particular underwriter, broker-dealer or agent may be in excess of those customary in the types of transactions involved.

The shares offered hereunder may be sold from time to time by the selling security holders in one or more transactions at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market prices, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions:

on any national securities exchange or U.S. inter-dealer system of a registered national securities association on which the common stock may be listed or quoted at the time of sale;

in the over-the-counter market;

in private transactions;

by pledge to secure debts and other obligations; or

a combination of any of the above transactions.

Under the Securities Exchange Act, any person engaged in the distribution of the shares may not simultaneously engage in market making activities with respect to our common stock for a period of 2 business days prior to the commencement of such distribution. In addition, the selling security holders will be subject to the applicable provisions of the Securities Exchange Act, which provisions may limit the timing of purchases and sales of shares of common stock by the selling security holders or any other such persons.

In order to comply with the securities laws of some jurisdictions, if applicable, the shares of common stock must be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in certain jurisdictions, the shares of common stock may not be sold unless they have been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

The selling security holders and any underwriters, broker-dealers or agents that participate in the sale or distribution of the shares of common stock may be deemed "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling security holders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

In addition, any securities covered by this prospectus that qualify for sale pursuant to Rule 144 of the Securities Act may be sold under Rule 144 rather than pursuant to this prospectus. A selling security holder may not sell any shares of common stock described in this prospectus and may not transfer, devise or gift these securities by other means not described in this prospectus.

To the extent required, the shares of common stock to be sold, the names of the selling security holders, the respective purchase prices and public offering prices, the names of any agent, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement of which this prospectus is a part.

In connection with the acquisition of all outstanding share capital of Shearwater, we agreed for the benefit of the selling security holders to register shares of our common stock they received under applicable federal and state securities laws under specific circumstances and at specific times. We will pay substantially all of the expenses incurred by the selling security holders incident to the offering and sale of the common stock.

LEGAL MATTERS

The validity of the shares of common stock offered hereby is being passed upon for us by Cooley Godward LLP, Palo Alto, California.

EXPERTS

Ernst & Young LLP, independent auditors, have audited our consolidated financial statements included in our Annual Report on Form 10-K, as amended, for the year ended December 31, 2000, the financial statements of Shearwater Corporation for the year ended June 30, 2000 included in our Current Report on Form 8-K, as amended, filed on August 10, 2001, and the financial statements of Bradford Particle Design plc for the year ended May 31, 2000 included in our Current Report on Form 8-K, as amended, filed on January 11, 2001, as set forth in their reports, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the information contained in documents that we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we will make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934:

1. Our Annual Report on Form 10-K for the fiscal year ended December 31, 2000, filed on March 1, 2001, including all material incorporated by reference therein;

2. Our Amendment Number 1 to Annual Report on Form 10-K/A for the fiscal year ended December 31, 2000, filed on May 1, 2001, including all material incorporated by reference therein;

3. Our Amendment Number 2 to Annual Report on Form 10-K/A for the fiscal year ended December 31, 2000, including all material incorporated by reference therein;

4. Our Definitive Proxy on Schedule 14A, filed on May 1, 2001;

5. Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2001, filed on May 14, 2001, including all material incorporated by reference therein;

6. Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2001, filed on August 14, 2001, including all material incorporated by reference therein;

7. Our Current Report on Form 8-K, filed on January 11, 2001 as amended by our Current Report on Form 8-K/A filed on October 4, 2001;

8. Our Current Report on Form 8-K, filed on May 23, 2001;

9. Our Current Report on Form 8-K, filed on June 4, 2001;

10. Our Current Report on Form 8-K, filed on June 20, 2001 as amended by our Current Report on Form 8-K/A filed on June 20, 2001;

11.

Our Current Report on Form 8-K, filed on July 10, 2001 as amended by our Current Report on Form 8-K/A filed on August 10, 2001 and further amended by our Current Report on Form 8-K/A filed on October 4, 2001;

12. Our Current Report on Form 8-K, filed on October 25, 2001;

13. All other reports filed by us pursuant to Section 13(a) or 15(d) of the Exchange Act since December 31, 2000, including all materials incorporated by reference therein; and

14. The description of the common stock contained in our Registration Statement on Form 8-A.

You may request a copy of these filings, at no cost to you, by writing or telephoning us at: Inhale Therapeutic Systems, Inc., Attention: Investor Relations, 150 Industrial Road, San Carlos, CA 94070, Telephone (650) 631-3100.

Our common stock is quoted on the Nasdaq National Market under the symbol "INHL." The last reported sales price of the common stock on the Nasdaq National Market ("Nasdaq") on November 1, 2001 was $16.64 per share. You may inspect reports and other information concerning us at the offices of the National Association of Securities Dealers, Inc., 1735 K Street, N.W., Washington, D.C. 20006.

You should rely only on the information incorporated by reference or provided in this prospectus. We have authorized no one to provide you with different information. This prospectus is an offer to sell or to buy only the securities referred to herein, and only under circumstances and in jurisdictions where it is lawful to do so. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of the document.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3, as amended, to register the common stock offered by this prospectus. However, this prospectus does not contain all of the information contained in the registration statement and the exhibits and schedules to the registration statement. We strongly encourage you to carefully read the registration statement and the exhibits and schedules to the registration statement. We also file annual, quarterly and special reports, proxy statements and other information with the SEC.

You may inspect and copy such material at the public reference facilities maintained by the SEC at Room 1024, 450 Fifth Street, N.W., Washington, D.C. 20549, as well as at the SEC's regional office at 500 West Madison Street, Suite 1400, Chicago, Illinois 60661. You may also obtain copies of such material from the SEC at prescribed rates by writing to the Public Reference Section of the SEC, 450 Fifth Street, N.W., Washington, D.C. 20549.

Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms. Our securities filings are also available to the public from the SEC's Website at www.sec.gov.

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