inventys

VeloxoTherm™: Breakthrough Carbon Capture Technology

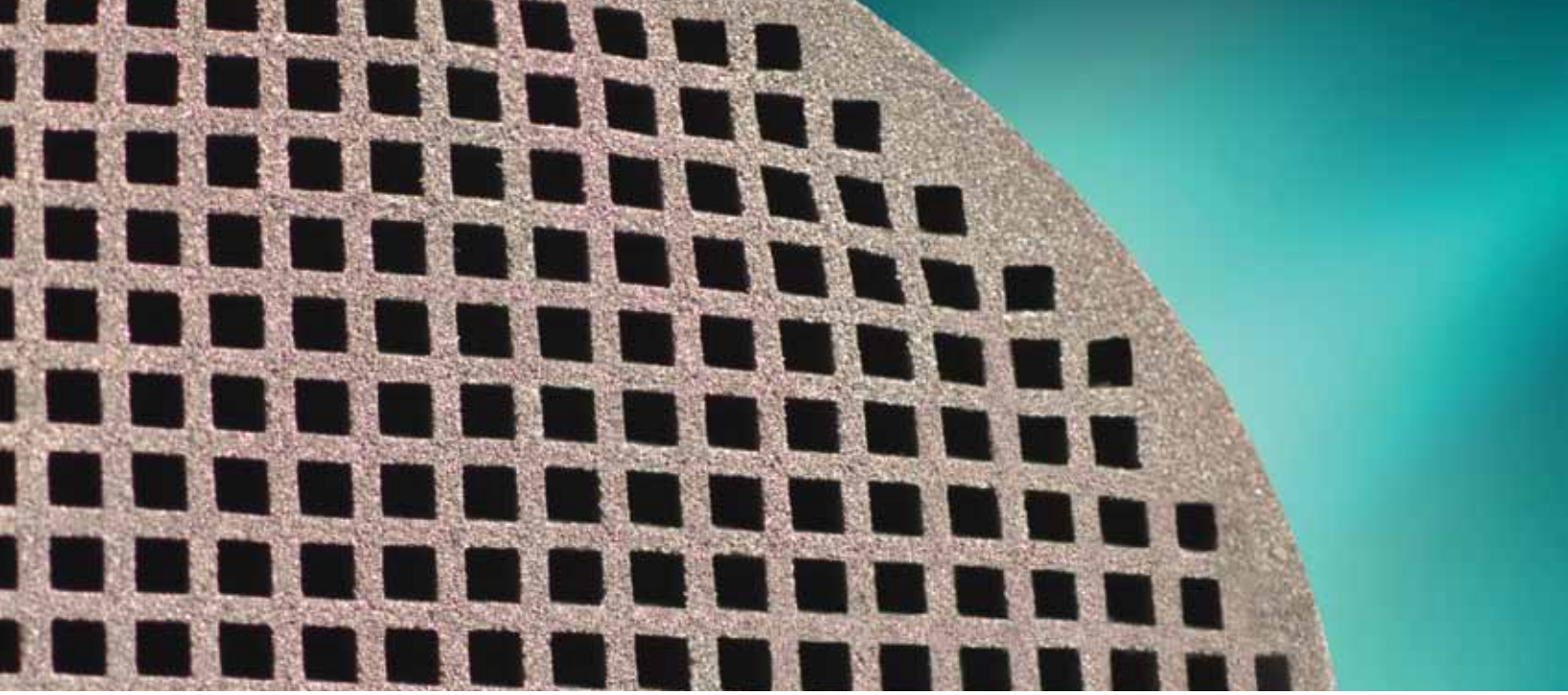
Capturing Carbon. Creating Value.

Inventys is commercializing the lowest cost and most energy efficient technology for capturing post-combustion CO2 from industrial flue gas streams. Our proprietary VeloxoTherm™ process is less than one-third the cost of existing capture technologies and uniquely enables CO2 capture at a price point that unlocks an enormous and lucrative opportunity – CO2 Enhanced Oil Recovery (EOR). Our goal is to rapidly create enterprise value by securing a significant share of the CO2 EOR value chain. Inventys is currently working on several pilot plant demonstration projects and partnering with some of the world's largest energy and manufacturing companies to rapidly deploy the technology.

The United States presently has ~400-billion barrels of trapped oil that cannot be recovered with conventional extraction techniques. CO2 Enhanced Oil Recovery is a 40 year old commercially proven process where CO2 is injected into mature oil fields to push the stranded oil to the surface. The process can recover up to 20% of the original oil in place. Approximately 1500 oil reservoirs are amenable to EOR in the United States alone for a total potential of 85 billion barrels ($6.4 trillion dollars) of incremental oil production. To date, CO2 EOR operations in North America have been constrained because the only supply of CO2 is from rare, limited capacity, naturally occurring CO2 deposits. In contrast, man-made waste CO2 from industrial emitters is available in enormous quantities, point sources are spread throughout the world, and the capacity is limitless.

The VeloxoTherm™ capture cost of $15/Tonne of CO2 will unlock this tremendous opportunity, enabling the production of large incremental amounts of oil without the need for exploratory drilling or development of new reserves in environmentally sensitive areas – all while effectively sequestering CO2 from large carbon emitters as part of the process, thus removing a critical greenhouse gas emission.

Inventys has received financial support from Suncor Energy, CO2 Capture Project, Industrial Research Assistance Program, Sustainable Development Technology Canada, C3 Energy, and an Oil Supermajor.

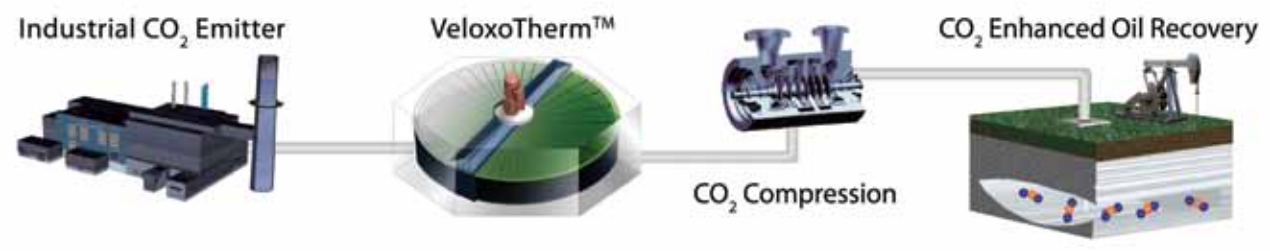


Technology

The VeloxoTherm™ CO2 capture technology is an intensified temperature swing adsorption process. It provides significant benefits over incumbent technologies for post-combustion capture of CO2 from low concentration industrial flue gases. The heart of the VeloxoTherm™ process is a proprietary structured adsorbent. When flue gases pass through the structured adsorbent channels, CO2 becomes trapped on the material while allowing other gases such as nitrogen and water vapor to pass unhindered. Once the structured adsorbent becomes saturated with CO2, the adsorbent is regenerated (CO2 is released) using low quality steam. The steam is then condensed into liquid water leaving a pure stream of CO2 that is compressed and transported to an enhanced oil recovery project. The VeloxoTherm™ process can capture CO2 from all types of industrial emitters such as coal-fired power plants, cement factories, natural gas power plants, and oil refineries.

Energy Efficient and Low Capital Cost

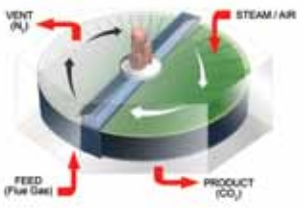
The key to the low operating cost of the VeloxoTherm™ process is energy management. The structured adsorbent has a unique ability to recover and store thermal energy evolved during adsorption and reuses this energy during regeneration. This distinctive property ensures that a minimum of energy is required for regeneration. Overall the structure greatly enhances the transport properties of conventional sorbent materials. This enhancement or intensification of the mass and heat transfer results in rapid cycle rates and low adsorbent inventory. These attributes lead directly to a small plant footprint, low capital cost, and maximum efficiency. The total CO2 capture cost of 15 US$/tonne is



less than one third of cost of the best available technology today and considerably below the cost threshold for CO2 EOR projects.

Proven Mechanical Embodiment

Inventys uses a simple proven rotating mechanical embodiment to conduct the required process and eliminate capacity scale up risk. Arrays of structured adsorbent sections are stacked together and then assembled into a rotating adsorbent wheel. As the wheel rotates, one section of the structured adsorbent contacts the flue gas and the other section contacts the regenerating flow of steam. The steady rotation of the adsorbent wheel produces a continuous flow of pure CO2 that is transported away from the machine through low-pressure ducting. The reliability, operation, and maintenance requirements of the rotating wheel concept are well understood as similar devices (rotary heat exchangers) have been used in the process industry for many years.



Structured Adsorbent Blocks are Assembled to form a Wheel

Howden Structured Adsorbent Wheel with Ducting Attached

Howden 22m Dia. Rotary Heat Exchanger

In order to rapidly deploy industrial process technology globally and execute on significant energy projects, strategic development partnerships are essential. Inventys has partnered with worldwide leaders in each technology sector necessary for manufacturing and deploying the VeloxoTherm™ capture technology.

MAST Carbon International

Mast Carbon International (MAST) is a technology company that specializes in research and development of advanced and specialty grades of high surface area carbons and nanoporous carbon materials, establishing itself as a world player in innovative carbon technologies. Inventys and Mast have established a partnership to develop structured adsorbents tailored to flue gas CO2 capture.

Howden

Howden supplies fans, rotary heat exchangers, compressors and gas cleaning equipment throughout the world to key industries including power generation, petrochemicals, and cement production. Howden has been designing and manufacturing rotary heat exchangers since the 1920s, supplying over 5,000 units worldwide. Inventys and Howden are currently jointly designing a pilot plant VeloxoTherm™ rotary adsorbent capture plant based on the engineering principles of Howden's rotary heat exchangers.

Major Power Plant EPC

The EPC is a world leader in the design, supply and construction of advanced steam generation and environmental control technology for the power generation industry and employs approximately 6,000 individuals. The EPC and Inventys are currently working together on modeling the VeloxoTherm™ process plant integration.

Natural Gas Turbine Manufacturer

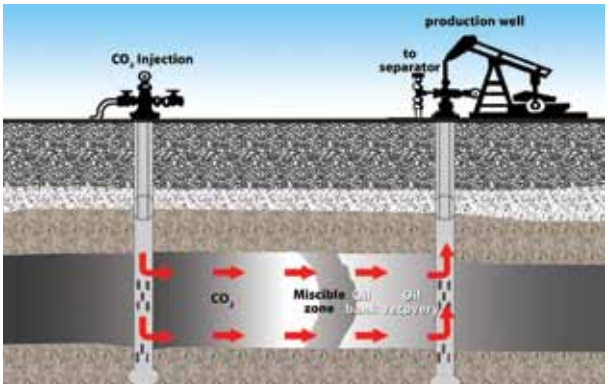
The manufacturer supplies gas turbines, compressors and diesel power units to customers in 120 countries. The business is a world leader in the supply of power for onshore and offshore oil and gas applications. Inventys and the Manufacturer are currently investigating novel VeloxoTherm™ integration methods for natural gas turbines to increase overall plant efficiencies.

CO_2 Enhanced Oil Recovery

Oil reservoirs produced through the use of primary and secondary extraction techniques still contain up to 60% of the original oil in place (OOIP). Injection of CO2 into mature oil reservoirs modifies the physical properties that trap the oil enabling recovery of 10-20% of the OOIP (right). The US Department of Energy estimates that 85-billion barrels of oil can be recovered in the United States if CO2 was widely available.

Approximately 250,000 barrels of oil per day is produced in the United States using CO2 EOR. The majority of the CO2 is supplied from rare natural deposits such as McElmo Dome, Sheep Mountain, Bravo Dome, and Jackson Dome. These CO2 deposits are controlled by EOR operators such as Kinder Morgan, Denbury Resources, and Occidental Petroleum.

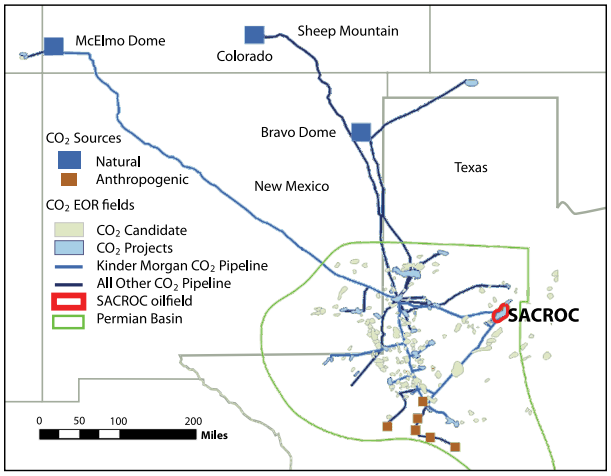
Most CO2 EOR projects cannot be developed due to a lack of CO2. Geological mapping of North America has shown that new deposits of natural CO2 are unlikely to be found. The cost of a pipeline to transport CO2 from the naturally occurring deposits becomes prohibitively expensive with increasing distance. Also, every CO2 natural deposit has a finite inventory, thus increased consumption will impact the lifetime of the CO2 deposit and jeopardize the EOR operations already dependent on that supply.



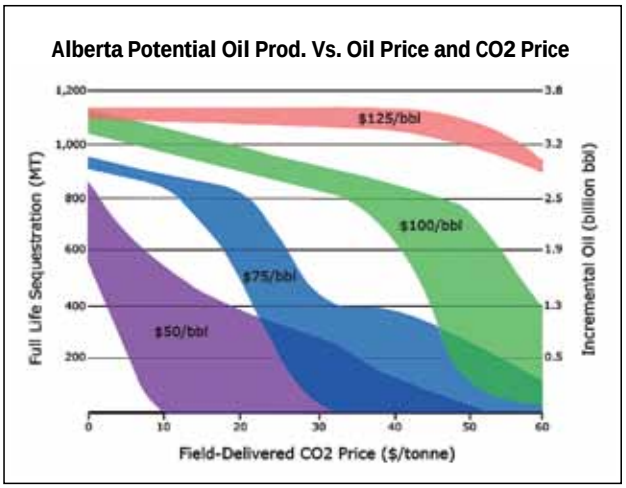
Enhanced Oil Recovery. CO2 is injected into oil wells and causes trapped oil to easily flow so it can be recovered.

However, CO2 from industrial emitters is available in enormous quantities, point sources are spread throughout the world, and lifetime capacity is nearly limitless. To date, the cost of pure CO2 from man-made low concentration flue gas has been prohibitively expensive to justify EOR projects. The VeloxoTherm™ CO2 capture cost of $15/tonne enables a worldwide supply of CO2 with limitless capacity for use on all oil fields that are amenable to CO2 EOR.

CO2 EOR projects are very profitable ventures. Kinder Morgan owns the SACROC EOR operation in Snyder, Texas that is supplied with a naturally occurring deposit of CO2 located in Cortez, Colorado and delivered through a 1000 km pipeline (below). In 2009, the SACROC field produced over 30,000 barrels of oil per day with an operating profit of US$377 million.



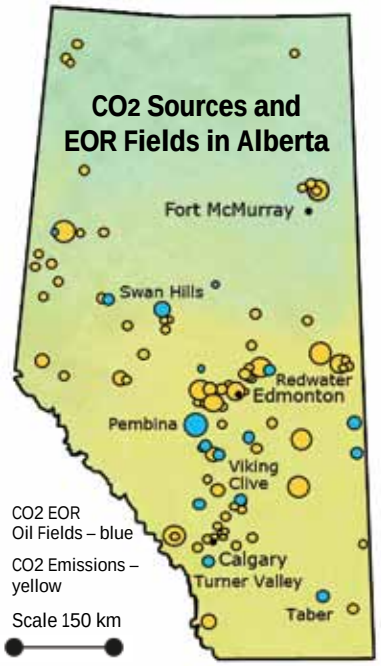
Alberta is a prime location for CO2 EOR due to the abundance of amenable oil fields, significant CO2 emission sources, and the complete absence of naturally occurring CO2. The Alberta Development Council estimates production of an additional 1.4-billion barrels of oil from conventional reservoirs (above) using CO2 EOR given a reference price of $75 per barrel of oil. This would require a total of 450-mega tonnes of CO2 at 10-20 mega tonnes per year. This translates into an opportunity for over $100-billion in incremental oil revenue.



SOURCE: Alberta Government CCS Council 2009

California is another example of a location with vast amounts of stranded oil that cannot be exploited using today's oil recovery practices. The DOE states that there are 88 oil fields amenable to CO2 EOR, from which an estimated 4.6-billion bbls of oil can be recovered. California does not have any natural deposits of CO2 but it does have many industrial CO2 point sources such as oil refineries and chemical plants that can provide significant amounts of CO2 for EOR.

Alberta potential production of 1.4 billion barrels of oil using CO2-EOR



Partnerships and Projects

Partnerships

Suncor Energy Inc.

Suncor is strategically focused on responsibly developing Canada's oil sands – the world's second largest resource base – and committed to their longstanding vision for sustainable energy development. Suncor's leading position in the oil sands is supported by integrated operations in refining and marketing, North American natural gas production, and oil and gas production internationally and offshore Eastern Canada. Suncor is also developing a growing renewable energy portfolio, targeting an investment of $750 million by 2012. A Canadian pioneer in wind power, Suncor has four wind farms in operation and other projects in the planning stages. The company also operates Canada's largest ethanol production plant near Sarnia, Ontario. Suncor's common shares (symbol: SU) are listed on the Toronto and New York stock exchanges.

Enhance Energy Inc.

Enhance Energy Inc. is creating the world's largest carbon capture and storage system in Alberta. The company specializes in enhanced oil recovery involving the permanent, secure storage of CO2 in mature oil and gas reservoirs.

CO2 Capture Project

The CO2 Capture Project (CCP) is a partnership of seven major energy companies working together to advance technologies that will underpin the deployment of industrial-scale CO2 capture and storage.

Oil Supermajor

Inventys is currently working on a VeloxoTherm™ process development program with one of the world's oil supermajors targeting dilute sources of flue gas such as natural gas combined cycle power plants, natural gas boilers, and once through steam generators. Purifying dilute sources of CO2 represents a large potential market considering the recent abundance of natural gas.

Government Funding

Industrial Research Assistance Program

The National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP) has provided Inventys with over $400,000 of funding for technology development over the last three years.

Sustainable Development Technology Canada

Sustainable Development Technology Canada (SDTC), a Government of Canada organization, has committed $2 million to Inventys for the development of the VeloxoTherm™ technology.

BC Investment Capital Program

Inventys is a BC Investment Capital Program eligible business corporation and therefore a BC resident can receive a 30% tax credit for purchasing equity.

Foreign Affairs and International Trade Canada

DFAIT has financially supported Inventys' objectives of establishing international partnerships.

Energy Technologies Institute
The Energy Technologies Institute is a UK based company formed by global industries and the UK government for funding low-carbon projects. Inventys has received approval to enter contract negotiations for significant project funding.

Climate Change and Emissions Management Corporation
Based in Alberta, the CCEMC is a funding organization with a deep interest in finding and pursuing technology development opportunities that offer transformative technology solutions. Inventys has submitted two applications requesting total funding of CAN $5 million.

Planned Projects

1. **Natural Gas Combined Cycle Power Plant – United Kingdom**
   Inventys is in contract negotiations with the Energy Technology Institute for funding the development of a VeloxoTherm™ CO2 capture plant for a NGCC power plant. The first stage consists of a 1 TPD capture plant tested at Inventys' labs and then scaling up to a 100 TPD plant installed at a NGCC plant in the United Kingdom. Total potential funding from ETI is £25m. The consortium for the project includes Howden Global, a Power Plant EPC, an Oil Supermajor, Mast Carbon International, and a Turbine Manufacturer.

2. **Once Through Steam Generator – Lloydminster, Saskatchewan**
   Husky has applied for CAN $5 million Federal funding for the installation of a 35 Tonne/day VeloxoTherm™ CO2 Capture pilot plant at a Husky Energy SAGD project located near Lloydminster, Saskatchewan. The successful demonstration of Inventys' CO2 capture technology may lead to the installation of CO2 capture projects at SAGD and CSS project sites throughout Alberta and Saskatchewan.

3. **Package Boiler – Joffre Petorochemical Plant, Alberta**
   Inventys has applied to CCEMC to fund the installation of a 60 TPD VeloxoTherm™ pilot plant at the Joffre Petrochemical Plant in partnership with Nova Chemicals and with Penn West Exploration as a potential EOR user. Penn West Exploration has completed a CO2 EOR pilot study on the Pembina field (largest Canadian oil field) with positive results. One of the strategies of Penn West Exploration, one of the largest conventional oil and natural gas producers in North America, is to evaluate CO2 EOR as one of the options to add additional reserves and production from their existing reservoirs.

4. **Coal Fired Power Plant - Battle River, Alberta**
   North West Capital and Enhance Energy have applied to CCEMC to fund the installation of a VeloxoTherm™ capture pilot plant at an ATCO Power plant in Battle River, Alberta. Once the pilot plant is proven, the plan is to scale up capacity to capture all the CO2 from the 670 MW plant and transport it 100 km to the Enhance Energy Carbon Trunk Line for use in enhanced oil recovery operations.



Leadership

André Boulet – Chief Executive Officer
André is a co-founder of Inventys and an inventor of the VeloxoTherm™ process. He is an inventor of several advanced gas separation technologies and is cited on more than 20 patent applications in this field. André led the development of NxtGen Emissions Controls' syn-gas generator and was the senior process development engineer at QuestAir Technologies. He holds a chemical engineering degree from the University of British Columbia along with a B.Sc. in Chemistry and Diploma of Mechanical Engineering from Dalhousie University.

Darryl Wolanski, P.Eng. – VP, Business Development
Darryl is a co-founder of Inventys and is involved in the business and technology development side of the company. He previously led business development at QuestAir Technologies for the company's emerging gas separation opportunities. Darryl holds a B.Sc. degree in chemistry and a chemical engineering degree from the University of British Columbia along with a MBA from the Richard Ivey School of Business.

Brett Henkel, P.Eng. – VP, Operations
Brett is a co-founder of Inventys and has considerable experience in business development, program management and product development. At QuestAir Technologies, he was responsible for managing the company's compact PSA development with its partner, ExxonMobil. He is credited with designing the world's first solenoid driven rapid-PSA test station. Brett holds a B.Sc. degree in physics and a mechanical engineering degree from the University of Victoria.

Soheil Khiavi, VP, Technology
Soheil is a co-founder of Inventys and an inventor of the VeloxoTherm™ process. Soheil brings 15 years experience in fundamental research and product development of adsorption systems and holds over a dozen patents and multiple publications in the field. Soheil's experience includes 10 years work at QuestAir Technologies as Advanced Process Application Manager for the company's adsorption systems. He graduated in Refinery Engineering from Shiraz University in Iran in 1992 and completed a Masters in Chemical Engineering from University of Western Ontario in 2001.

Christopher Stoner. P. Eng, Director, Mechanical Design
Chris is responsible for the mechanical engineering of development hardware and the VeloxoTherm™ products. Chris brings 13 years experience in designing, developing, and manufacturing hardware for gas processing equipment. He spent seven years designing gas seals for rotary adsorption separation equipment while at QuestAir Technologies and was instrumental in the design of dynamic seals for a first of kind rotary hydrogen adsorption system that was successfully installed and operated at an ExxonMobil refinery. Chris holds a B.A.Sc. in Materials Engineering from the University of British Columbia.

Board of Directors

Dr. James Miller
Dr. Miller is among Canada's most successful biotechnology entrepreneurs and founding CEO of QLT Inc. and Inex Pharmaceuticals. As managing partner of NDI Capital, he has been instrumental in investing and providing guidance to a variety of technology companies.

Reg Allen
Mr. Allen was the CEO and President of Vortek Industries and was responsible for its successful sale to Mattson Technology. Mr. Allen has a broad background in product development, sales, marketing, and business leadership and has raised in excess of $30-million in funding from Canada, the US and Europe.

Dr. Denis Connor
Dr. Connor was the Chairman and founding CEO of QuestAir Technologies., an advanced gas separation company focused on oxygen and hydrogen production. Prior to joining QuestAir, he led the Science Council of British Columbia and was the founding director of Fuel Cells Canada. Early in his career, Denis spent twelve years at MacDonald Dettwiler in executive positions.

Advisory Board

Dr. Bowie Keefer
Dr. Keefer is a recognized leader in the use of structured adsorbents for gas separations and has an extensive list of patents in this field. Dr. Keefer was the founder and the Chief Scientist at QuestAir Technologies. Dr. Keefer graduated in Engineering Physics from Royal Military College and completed a Ph.D. in Theoretical Physics from the University of British Columbia.

Dr. Douglas Ruthven
Dr. Ruthven is internationally known for his innovative research in chemical engineering, specifically in the theory and practice of adsorption processes. He is the recipient of the prestigious Max Planck Research prize and is an elected Fellow of the Royal Society of Canada. Dr. Ruthven has authored books and has published more than 300 research papers in adsorption and adsorption processes.

Inventys Thermal Technologies, Inc.

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