



Maria Aubrey (centre), senior vice-president, operations, SDTC, Steve Petrone (right), president, Quantiam Technologies Inc., and Anita Arduini, MCIC (left), technology business development manager, NOVA Chemicals Corporation, stand in front of a pilot-scale heat treatment unit used to process novel catalysts for prototype manufacture.

## Clean Technology Project

Edmonton-based Quantiam Technologies unveils a promising new method for the petrochemical industry to reduce greenhouse gases and manufacturing costs.

Sustainable Development Technology Canada (SDTC) contributed \$1.45 million to a project to develop and demonstrate a technology for more efficient manufacturing of olefins—the single largest group of industrial petrochemicals worldwide. This new technology is a significant step forward in reducing greenhouse gases in the industrial sector. In addition, it could lower the energy costs of olefins manufacturing by up to 20 percent. In addition to SDTC funding, this project is leveraged by an investment of \$8.3 million from other private and public sources, including consortium partner NOVA Chemicals Corporation, a leading olefins producer. The total value of the project is \$9.8 million. SDTC's funding will assist Quantiam and its consortium partners in developing and demonstrating a process that uses less heat energy than conventional methods used in the production of olefins,

which are ultimately used to make common products such as plastics, lubricants, and antifreeze.

"[This] announcement clearly shows that Canadian companies, like Quantiam and its partners, are leading the world in developing clean energy technologies," said Senator Tommy Banks on behalf of the Government of Canada. "We believe that these kinds of technologies will not only help us address climate change, but also create new economic opportunities in the years to come."

Conventional hydrocarbon steam cracking used to produce olefins is the most energy-intensive process in the chemical industry, with energy costs exceeding \$10 billion a year and significant carbon dioxide emissions worldwide. Targeting furnace coils used in steam cracking, the consortium's technology involves a new generation of catalytic coatings that are projected to allow for manufacturing at lower temperatures. In addition to reducing energy consumption and emissions, the technology could significantly improve plant efficiencies and profitability. The overall economic and environmental impacts are significant for an industry producing more than 110 million tonnes annually of ethylene alone (the single most important olefin), valued at \$80 billion.

Vicky J. Sharpe, president and CEO of SDTC, says that "SDTC invested in Quantiam because we see the potential for the consortium's technology to succeed in a number of ways, in both reducing greenhouse gas emissions and contributing to the increased productivity and competitiveness of Canadian companies in the energy, materials manufacturing, and petrochemical sectors."

Sharpe adds, "SDTC does more than fund projects. We connect partners at all points of the supply chain and help entrepreneurs to validate their business plans. This strengthens the value proposition of technologies, making them more attractive to downstream investors and getting them to market faster. In the case of Quantiam, the participation of its consortia members indicates that industry players support what we're doing and recognize the opportunities of the clean technologies in development today."

"I'm pleased to congratulate Quantiam on its progress to date on an initiative that will change how the world produces olefins, one of the most widely used petrochemicals," said the Honourable Anne McLellan, Deputy Prime Minister and Minister of Public Safety and Emergency Preparedness. "The potential for this technology, both environmentally and economically, is tremendous and I'm proud that the Government of Canada, through SDTC, is supporting the project."

The development of the consortium's olefins manufacturing technology has been accelerated with nanotechnology; Quantiam operates the most advanced private sector nanomaterials development and characterization facility in Canada. Quantiam is now building a pilot manufacturing plant for the new olefins technology as a stepping stone to full commercialization.

"Quantiam and our consortium partners are committed to the successful development and demonstration of this new nanomaterials technology to the benefit of Canada, our environment and all of our stakeholders," says Steve Petrone, president, Quantiam Technologies. "SDTC funding is helping our consortium bring this technology to market faster by addressing the most critical, under-funded links in the innovation chain—the piloting and demonstration stages."

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