

Featured Innovator



Edmontonians who want to understand the potential of nanotechnology to benefit the environment and transform the city's economy need look no further than Quantiam Technologies Inc., this month's featured innovator at Edmonton Research Park.

The 12-year-old nanomaterials and clean-tech company and its 15 employees create, manufacture and apply advanced coatings based on the science of how materials interact with each other at the smallest detectable scale, such as the first few layers of atoms on the surface of a steel pipe.

Quantiam founder and CEO Dr. Steve Petrone and a small, PhD-rich team began the business by developing coatings that provide superior wear resistance to steel equipment. In addition to customers in petrochemicals, the oil sands, mining and oil and gas, Quantiam is working with the U.S. Defense Department to provide improved armored protection for soldiers and military vehicles.

Working with partner NOVA Chemicals Corp., Quantiam spent eight years developing a process called CAMOL (for Catalyzed-Assisted Manufacture of Olefins) for the petrochemical industry. The process employs a nanomaterial coating working in tandem with a catalyst to correct a chronic problem of carbon buildup inside the massive furnaces that produce olefins, the building blocks of most common plastics.

The process allows plants to operate at lower temperatures, reducing energy costs and greenhouse gas emissions per ton of plastics produced by up to 20 per cent. Plants also benefit from increased capacity because monthly shutdowns are no longer needed to clean out unwanted carbon fouling.

CAMOL is installed at three Canadian petrochemical plants and one in Europe. It recently made its first sale to the United States and a second European sale. Potentially, there are 1,500 units worldwide that could install CAMOL at \$1 million to \$2 million each.

Quantiam is building a 34,000-square-foot (3,159-square-metre) production plant in Edmonton Research Park, where it will join an innovation community of more than 50 companies. "From small start-up firms to global corporate players, Edmonton Research Park provides the environment where exciting developments like those of Quantiam Technologies can grow and thrive," says the park's manager, Neil Kaarsemaker.

The new facility, expected to open early in 2011, will house the most advanced private sector nanotechnology research lab in Canada.

To build the plant, Quantiam raised \$8.3 million in 2009 from investors, including Ursatur Capital Management of Toronto and BASF Venture Capital GmbH, the venture capital arm of the world's largest chemical company, BASF, Germany. In earlier years, Industry Canada and Sustainable Development Technology Canada invested \$5 million in the technology.

Petrone believes Quantiam is only scratching the surface of what's possible with nanomaterials. An early supporter of the decision a decade ago to locate the National Institute for Nanotechnology (NINT) in the city, he says Edmontonians have been slow to embrace the potential of nanotech.

"I think it will define Edmonton and Alberta post-oil," he says. "If we can rise to the challenge and do what is needed to fully exploit it, NINT will be in our long-term benefit."