

# TECHNOLOGY

## *Polyolefins Research & Development*

### PURPOSE

Research and development is the foundation of technology, through which we are able to advance polyolefins science for our customers and their markets in a vastly changing world. NOVA Chemicals views technology as a key element in maximizing the value of our present and future polyethylene business and is fully committed to maintaining world-class personnel and research facilities for our polyethylene technology platforms.

The mandate of the polyethylene research and development organization is to deliver value to our customers through the evolution of our two main polyethylene platforms: the solution phase process and the gas phase process.

NOVA Chemicals' polyolefins research and development programs deliver value to our customers by developing or improving catalyst, process, and product technologies, resulting in:

- the development of leading-edge products
- an expanded range of product capability
- an improvement in the efficiency of our manufacturing processes
- an increased understanding of the relationship between a product's fundamental properties and its final performance



- the capability to design and control resin properties
- the exploration of new products and catalysts
- the delivery of overall, cost-effective solutions

### PEOPLE

The Polyolefins Research and Development (R&D) team is made up of highly qualified scientists, research engineers and technologists. Members of our team, many of whom hold advanced degrees, are well-equipped with the knowledge required to develop bold solutions for the polyolefins industry. Our award winning scientists, recognized as world-class leaders in their field, contribute insight, expertise and creative thinking through the extensive use of cross-functional teams. Collectively, they deliver results in a timely and cost-effective manner.



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## ACTIVITIES

Idea generation is actively promoted and qualifying initiatives enter the project "pipeline". Multi-disciplinary teams collaborate to efficiently drive these programs through to successful completion.


Advanced SCLAIRTECH™, NOVA Chemicals' new solution polyethylene technology, is just one of many exciting breakthroughs our team has made across the spectrum of our customer-focused research and development efforts. This new solution polyethylene technology has been developed entirely within NOVA Chemicals in just a few short years and is now showing a significant positive impact on NOVA Chemicals' business.

Our R&D team has also made significant contributions to NOVA Chemicals' reputation of being one of the world's leading gas phase polyethylene producers. The implementation of NOVACAT™ catalyst technology and our participation in projects to debottleneck the gas phase LLDPE reactors at Joffre have contributed to achieving numerous worldwide production records, while at the same time leading to the commercialization of new products for the gas phase platform and ensuring a high level of product quality.

In addition to advancing both our solution and gas phase polyethylene platforms, our research programs also support

- our tubular high-pressure LDPE technology,
- the existing SCLAIR® solution polyethylene technology,
- our HDPE gas phase product technology, and
- the process and catalyst licensing efforts required by our SCLAIRTECH™ technology licensing and catalyst sales businesses.



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