TECHNOLOGIES

Catalyst Solution

Novolen operates a fully equipped research and development center for catalyst and polymer innovation in Ludwigshafen, close to the Novolen offices in Mannheim. We also have an established worldwide network with institutes, universities and industrial cooperation partners.

This environment helps Novolen further develop our catalysts to support our worldwide polypropylene activities. The facilities for both Ziegler-Natta and metallocene catalyst systems comprise:

- Catalyst preparation in laboratory and bench-scale
- Analytical laboratory for complete analyses of polymers
- Mechanical testing laboratory equipped for full mechanical characterization
- Screening equipment for high output testing
- Autoclave reactors for further polymer development
- Application laboratory to run polymers for all common and special applications in the marketplace.

Ziegler-Natta Catalyst

For the Novolen gas-phase process we offer Ziegler-Natta catalyst systems that are fully proven in commercial polypropylene operations around the world. A prepolymerization step is not required.

The advantageous morphology of the catalysts is replicated in the polymer powder, thereby avoiding any operational problems, e.g., wall fouling or lump formation, in the reactor and subsequent solid handling systems.

These catalysts are commercially used to produce the complete polypropylene product range required in today's markets. The product slate covers the range from high-stiffness homopolymers to super-high impact copolymers including a wide range of random copolymers and terpolymers.

Metallocene Catalyst

Lummus Novolen Technology is one of the leading companies in the field of metallocene technology. Novocene® technology, Novolen's proprietary metallocene technology, is the ideal complement for added value applications.

The Novocene technology covers catalyst, polymerization technology, polymers and all related services. With the introduction of our latest generation of high performance Novocene catalysts, metallocene polypropylene technology has reached a cost competitive range compared to Ziegler-Natta catalysts. Our broad access to metallocene patent rights and our outstanding expertise in this technology enables us to license and sublicense metallocene technology to all interested parties, including licensors of our own Novolen process and licensors of other polypropylene process technologies. The Novocene technology has proven to be drop-in capable for the Novolen gas-phase process.

High performance metallocene single-site polymerization catalysts are tailored for the production of the full range of polypropylene homo- and copolymers. These show unique properties, which cannot be met by conventional Ziegler-Natta polypropylene grades:

- Very uniform and narrow molecular weight distribution (MWD < 2.5)
- Uniform comonomer incorporation
- Significantly reduced low molecular weight fractions (low solvent extractables)
- Significantly reduced chlorine content (typically < 2 ppm)

- Much better crystallization behavior and reduced crystallite size.

Due to their superior balance of properties, metallocene polypropylenes target value-added high-performance applications for the replacement of conventional Ziegler-Natta polypropylene grades.

Use the links below to explore the Novolen process.

- Novolen Technology
- Novolen Gas-Phase Polypropylene Process Description
- Metallocene
- Product Range
- Licensing
- Research and Development
- Technical Support