# Technologies

## Polypropylene

Polypropylene is one of the world's most widely used petrochemical products. It is used in a wide range of commercial and household applications such as fibres, automotive components and film.

The INEOS Innovene<sup>™</sup> PP Polypropylene process offers the widest product range available at the lowest cost. The process uses a simple and robust design with an extremely low equipment count. Resulting low capital cost together with high, on-stream times and rapid grade transitions give Innovene technology the lowest lifetime cost. INEOS Technologies' unique agitated plug flow reactor allows for rapid and efficient transitions between product grades. Furthermore, the process can be easily and economically debottlenecked to produce increased plant capacities.

In the period from 2008 to 2012, the Innovene  $^{\text{TM}}$  PP process has been the number one third party licensed polypropylene technology in the world.

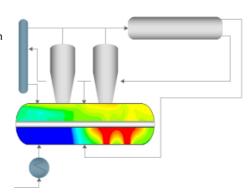
Enhanced products are available by utilising the new INstage process modification, while new catalysts in the INcat family will add even broader molecular weight distribution and higher rubber content products to the Innovene<sup>™</sup> PP offer.

INEOS Technologies' commitment to ongoing research and development ensures that Innovene<sup>™</sup> PP technology will continue to bring high value to the world of polypropylene, now and into the future.

The Innovene<sup>™</sup> PP technology is capable of making all homopolymer, random copolymer and impact copolymer grades, using single or multiple catalysts and producing more than 500 kt per year, thus providing the best polypropylene value in the industry in terms of capital and operating costs.

## **INstage**

Innovene<sup>™</sup> PP has continued to advance with the recent development of the INstage process enhancement for the production of advanced broad molecular weight distribution polypropylene products. Available as an addition to new or existing Innovene ™ PP plants to deliver a leading process capability for tailored product design.



## **Products**

The combination of Innovene<sup>™</sup> PP and INcat high-performance catalysts gives licensors the ability to create a wide range of homopolymers, random copolymers, and impact copolymers including reactor thermoplastic olefins (r-TPOs), and the Innovene<sup>™</sup> PP technology covers a broad range of polypropylene fabrication methods to satisfy diversified market needs. This technology can be extended to develop additional product grades that meet local customer requirements as well as emerging market needs.

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