



Licensed Polyolefin Technologies and Services

Spheripol

Leading polypropylene process technology for the production of homopolymers, random and heterophasic copolymers

www.lyondellbasell.com/technology



With over 100 licensed lines around the globe, LyondellBasell has pioneered the *Spheripol* polypropylene process, which represents over 40 years of continuous commitment to innovative polypropylene technology development.

More companies use the *Spheripol* technology than the technologies of the three closest competitors combined. More than 20 million tonnes of *Spheripol* process capacity has been licensed worldwide, providing licensees with an elegant and economical method to produce a wide range of premium-quality polypropylene grades.

LyondellBasell's development of a third-generation high-yield, high-selectivity catalyst has dramatically simplified the *Spheripol* process steps and significantly improved product quality.

Additional breakthroughs have subsequently occurred in the process design through the refinement of the bulk-polymerization and gas-phase reactors.

The latest-generation *Spheripol* process design utilizes the newest catalysts, enabling the production of market-leading, reactor-based product families with improved properties that reinforce the technology's industry-benchmark status.

Key characteristics of *Spheripol* process technology

Safety and environment

- A safety record among the best in the industry
- Leading resource consumption, monomer efficiency and emissions
- No undesired by-products from the reaction

Product capability and versatility

- Wide range of homopolymers, random copolymers and heterophasic impact and specialty impact copolymers, as well as terpolymers for all polypropylene applications
- Unmatched product quality with minimum property variation due to excellent process stability and catalyst performance

Reliability

- Average overall operability rate is approximately 98% – in an average of 2% downtime, less than 1% is due to process features

Design flexibility

- Single-line capacities, from 40 up to 550 kt/a are available for homopolymer, random copolymer and heterophasic impact copolymer production
- Tailored design for chemical or polymer grade monomer feedstock

Modular flexibility

- Expansion achievable through minor adjustments
- Extension of product range possible through introduction of *Metocene* PP process as an add-on technology
- Flexible modular design facilitates low investment costs

Economics

- Capital costs are competitive with currently available polypropylene processes
- Lowest operating costs of any PP process and high transition efficiency

