



*Hyperzone PE Pilot Plant,
Frankfurt, Germany*

lyondellbasell
Advancing Possible

 *Hyperzone PE Process Technology*



The Next Evolution in Polyethylene Technology for the Plastics Industry

For over 70 years, LyondellBasell and its predecessor companies have developed new products and processes that serve as the bedrock of the chemical industry. Today*, LyondellBasell is the global leader in the development and licensing of polyolefin processes and related catalysts.

LyondellBasell continues this tradition of innovation with the introduction of a new polyolefin process, *Hyperzone* PE technology, which produces high density polyethylene (HDPE) resin

with exceptional characteristics. This technology utilizes three distinct reaction zones in two reactors, which enables the production of tailored polymer structures to meet customers' demanding processing and product requirements.

Hyperzone PE technology produces HDPE that enables our customers to obtain an optimal balance between ease of processing and high performance end-product physical properties.

Product Benefits**

Hyperzone HDPE Properties:

- Improved processability
- Superior toughness properties
- Improved chemical resistance

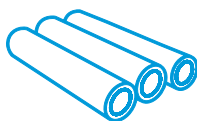
Customer Benefits:

- Achieve source reduction in some applications
- Increase productivity
- Improve durability of final products
- Improve crack growth resistance in pipes

Product processing methods



Blow
molding



Pipe



Film

* 2017 data as of December 31, 2017

** Based on pilot plant results

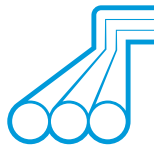
Hyperzone HDPE Applications

Hyperzone PE technology can produce a broad spectrum of HDPE that is used in a variety of applications.

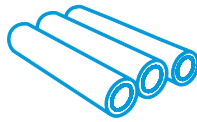
Some Typical Applications:



Water pipes



Gas pipes



Industrial pipes



Household bottles



Industrial bottles



Toys



Industrial packaging



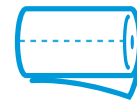
Intermediate bulk containers



Retail carry out bags



Institutional can liners



Produce bags

Journey to Developing the Hyperzone PE Process Technology

We have combined the best of what we have learned over the years in process technology, catalyst technology and product development to bring the Hyperzone PE technology to market. This technology is a product of years of work by LyondellBasell's global research and development teams in Ferrara, Italy; Frankfurt, Germany; Cincinnati, Ohio; and Houston, Texas.

Ferrara, Italy – Developed proprietary Hyperzone PE process technology and custom catalyst.

Frankfurt, Germany – Constructed an operating pilot plant for process and product development.

Cincinnati, Ohio/Houston, Texas – Conducting product testing and customer trials using HDPE produced from Hyperzone PE process technology.

La Porte, Texas – Building first commercial, world-scale Hyperzone PE plant. La Porte is the ideal location due to its proximity to price-advantaged feedstocks and the transportation infrastructure needed to ship product to markets across the globe. Plant start up is planned in 2019.



New Hyperzone PE Plant

1.1 billion

pounds-per-year HDPE

ABOUT US

LyondellBasell (NYSE: LYB) is one of the largest plastics, chemicals and refining companies in the world. Driven by its 13,400 employees around the globe, LyondellBasell produces materials and products that are key to advancing solutions to modern challenges like enhancing food safety through lightweight and flexible packaging, protecting the purity of water supplies through stronger and more versatile pipes, and improving the safety, comfort and fuel efficiency of many of the cars and trucks on the road. LyondellBasell sells products into approximately 100 countries and is the world's largest licensor of polyolefin technologies. In 2018, LyondellBasell was named to Fortune Magazine's list of the "World's Most Admired Companies."

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