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Review 2014-03

Polypropylene Process Summary

By Susan L. Bell

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Abstract

Polypropylene is the largest volume polymer with an estimated world production volume of 56 million metric tons in 2013. Demand is expected to increase at an average annual growth rate (AAGR) of 4.3% from 2013-2023. Capacity additions are planned in Asia, North America, and the Middle East.

In this process summary, we review current polypropylene production processes. Features and differences between processes are summarized. The status of polypropylene process licensors and their offerings are compared. This review discusses recent technology developments based on our patent survey. Updated process economics for the following polypropylene processes are presented: (1) Spheripol, (2) UNIPOL, (3) Novolen, (4) Innovene, and (5) Spherizone. The process economics include estimated capital costs, variable costs, and plant cash costs. Carbon footprint data for the processes are also included. A brief market overview summarizes the global supply and demand and end-use markets and demand drivers.

This review highlights the new iPEPSpectra™ cost module. The cost module attached with this process summary (on the PEP website), provides a powerful interactive tool with which to interpret data in a flexible manner by generating pivot tables and corresponding charts. In this review, the iPEPSpectra™ cost module is demonstrated with historical economics for the polypropylene processes for different regions of the world. Until now, most process economics were presented as snapshot comparisons. Due to the fluctuation and variation of feedstock and utility prices over time and in different regions, the ranking of the processes by a snapshot comparison can be misleading. An iPEPSpectra™ historical economics comparison provides a more comprehensive method of assessing competing technologies, leading to a more valid investment decision.

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