



TECH 2018S1: Specialty Polyamides

Specialty Polyamides is one in a series of reports published as part of Nexant's 2018 Technoeconomics – Energy & Chemicals (TECH) program.

Overview

Polyamides (PAs) are recognized as the first and one of the most important classes of thermoplastics discovered. While the primary markets for polyamides were initially in fiber applications, the use of polyamides in injection molding and extrusion end-uses has increased in importance since the 1950s.

This TECH report provides an updated overview of the technological, economic, and market aspects of selected Specialty Polyamides. The following issues are addressed in this report:

- What are the major technologies for selected Specialty Polyamides production? How do the technologies differ? Which technologies are available for license?
- How do the process economics compare across different geographic regions?
- Who are the leading producers of Specialty Polyamides? What expansion plans have been announced?
- What is the current market environment for Specialty Polyamides? How does growth vary by geography and material type?

Materials Covered

This report covers a number of “specialty” polyamides so as to illustrate the diversity of this family of thermoplastics. Covered in this report are polyamide 6,10; 12; 4,6; and polyether block amides (PEBA) which are interchangeably called copolyamide elastomers (COPA). Polyamide 6,10 is receiving renewed interest as it contains about 62 percent by weight monomers from renewable sources. Polyamide 4,6 was selected as an example of a very high temperature material, while COPA was selected to illustrate the potential to make elastomeric thermoplastic amid-containing polymers. Polyamide 12 was selected due to a resurgence in interest in this polymer due to its utility in additive manufacturing (3-D printing).

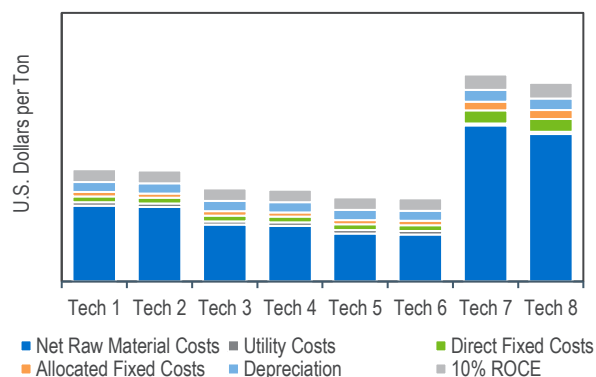
Process Economics

Detailed cost of production estimates for various technologies are presented for USGC, coastal China, and Western Europe locations. Economics were also developed for key raw materials - sebacic acid and laurolactam.

Commercial Overview

In 2017, Asia accounted for over 30 percent of global demand of specialty polyamides (defined as all thermoplastic polyamides excluding polyamides 6 and 6/6). Strong growth is forecast for Asia based on the region's position as a base for manufacturing. The markets in Europe and North America are relatively mature, with a commensurate growth outlook. Demand in all other regions is quite small. Demand forecasts are provided in the report.

Specialty Polyamide Production Costs





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- Trends in chemical technology
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- Chemistry
- Process flow diagrams and descriptions of established/conventional, new and emerging processes
- Process economics – comparative costs of production estimates for different technologies across various geographic regions
- Overview of product applications and markets for new as well as established products
- Regional supply and demand balances for product, including capacity tables of plants in each region
- Regulatory and environmental issues where relevant

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