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Polybutylene Terephthalate

PEP Review 2022-13

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Abstract

Polybutylene terephthalate (PBT) is a thermoplastic polyester engineering resin with a combination of high strength, lightweight, and superior electrical properties, making it an attractive replacement for metals in engineering applications. In 2021, over 1.4 million metric tons of PBT were produced globally, which represents a 60% increase from 2011 volumes. Production capacity of PBT is concentrated in Northeast Asia and Western Europe with more recent PBT investments in Mainland China. PBT can be produced by the polycondensation of 1,4-butanediol with dimethyl terephthalate (DMT) or purified terephthalic acid (PTA). Our earlier evaluation of PBT production was based on DMT. However, since supplies of DMT have fallen significantly in recent years, all new PBT production plants are based on PTA.

In this review, the industry status of PBT is updated. A techno-economic evaluation of PBT production by polycondensation of 1,4-butanediol and PTA is presented. Lastly, the iPEP Navigator tool is attached to the electronic version of this review. The iPEP Navigator interactive module provides an economic snapshot for PBT production process, allowing the user to select and compare the process in different units and regions of interest.

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