

A new PLA process makes its commercial debut

Earlier this year, the first polylactic acid (PLA) plant based on a new polymerization process was put into service by Synbra Technology in Etten Leur, the Netherlands. The plant — capable of producing up to 5,000 ton/yr of PLA — was built by Sulzer Chemtech Ltd. (Winterthur, Switzerland; www.sulzerchemtech.com), and uses a PLA process jointly developed by Sulzer Chemtech and Purac (Gorinchem, the Netherlands; www.purac.com), a company of the Dutch CSM group.

PLA is made (flowsheet) by the ring-opening polymerization of lactide — a cyclic dilactate ester, which is produced by the esterification of two lactic-acid molecules, followed by a catalytic cyclization reaction. Unlike conventional routes, the melt-based process does not require solvents, and is able to produce all different grades of PLA, with a wide range of molec-

ular weights, in a single line, says Torsten Wintergerste, Director of PolyTechnology at Sulzer Chemtech. The continuous process also takes advantage of Sulzer Chemtech's proprietary static-mixing technology, which reduces maintenance and the plant's footprint, as well as simplifying scaleup and plant operation, he says.

The new process is also able to convert stereochemically pure L- and D-lactide — available from Purac — into a stereochemically pure PLA. This enables the production of high-temperature-resistant (up to 180°C) PLA and stereo-complex PLA grades, says Wintergerste.

To further support customer application development for PLA grades and demonstrate its polymerization technology, Sulzer is building its own PLA production plant. The 1,000-ton/yr plant will be operational early this year at a company's site in Switzerland.

