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## From lab to an industrial scale Sulzer PLA technology

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In the last years, PLA has gained significant market attention, with several large brand owners announcing evaluation of this material or even launching new solutions based on PLA as a sustainable alternative to existing fossil-based plastics in packaging and thermoplastic applications. Bio-based, biodegradable, versatile, temperature resistant and suitable for food contact applications: PLA offers a variety of advantages and benefits. But, it is also a sensitive material requiring special conditions during production and processing. With regards to temperature control and shear, advanced technology is required to obtain a product with high crystallinity and molecular weight, combined with low residual monomer and yellowness index, allowing the material to match and even exceed technical expectations and standards set by the existing thermoplastics. Sulzer has developed a flexible and robust PLA production technology to enable PLA producers to enter the biopolymer market at customizable scale. The process was scaled-up from lab scale bench tests and extensive pilot testing to large production capacities and it is nowadays state-of-the-art in PLA technology. The Sulzer PLA technology is discussed in the first part of this work with focus on process design and the Sulzer proprietary key equipment. In the second part, the scale up of the ROP process from laboratory to industrial scale is presented.

### Biography

Fabio Codari is a graduate of the Politecnico di Milano in chemical engineering and holds a PhD in polymer science from the Swiss Federal Institute of Technology of Zurich (ETHZ). He has been working for Sulzer Chemtech for six years in various R&D, sales and application development positions. His main fields of expertise are polymerization, devolatilization and upgrade polymer processes.

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