

## **From lab to an industrial scale Sulzer PLA technology**

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### **Abstract**

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, compounding and thermoplastic applications.

Bio-based, biodegradable, versatile, temperature resistant and suitable for food contact applications: PLA offers a variety of advantages and benefits. It is also a sensitive material and requires 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 that, combined with low residual monomer and yellowness index, matches, and even exceeds, technical expectations and standards set by the existing thermoplastic industries.

Sulzer has developed, firstly thanks to its work in the lab and then in the pilot plants, a flexible and robust technology to enable PLA producers to enter into the biopolymer market at customizable scale with various PLA grades, from low to high molecular weights, and various L/D contents. The process has been 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 ensuring stable operation, fast control and short residence time.

Thanks to engineering and assembly capabilities, Sulzer can develop and execute whole projects, from the first concept to an industrial scale plant using in house engineering, equipment, assembly, commissioning & start-up capabilities. The test center allows also to carry out laboratory and pilot scale trials in order to validate the process specifically for the Client requests.

**Keywords:** Poly (lactic acid), Bio-polymers, Polymer Production Plants, Engineering