

## Luminy® LX175

**Description** PLA is a biobased polymer derived from natural resources and offers a significant reduction in carbon footprint compared to oil-based plastics. Luminy LX175 is a high viscosity, low flow, amorphous, transparent PLA resin suitable for film extrusion, thermoforming or fiber spinning.

<b>Physical properties</b>	Density (literature value)	1.24 g/cm <sup>3</sup>
	Melt flow index (ISO 1133-A at 210°C/2.16kg)	8 g/10 min
	Melt flow index (ISO 1133-A at 190°C/2.16kg)	3 g/10 min
	Stereochemical purity (Corbion method)	96 (% L-isomer)
	Appearance (visual)	crystalline white pellets
	Residual monomer (Corbion method)	max. 0.3 %
	Water / moisture (Coulometric Karl-Fisher)	max. 400 ppm
	Melting temperature $T_m$ (DSC)	155 °C
	Glass transition temp. $T_g$ (DSC)	55-60 °C

*Typical properties, not to be interpreted as specifications*

<b>Mechanical properties</b>	Tensile modulus (ISO 527-1)	3500 MPa
	Tensile strength (ISO 527-1)	45 MPa
	Elongation at break (ISO 527-1)	max. 5 %
	Charpy notched impact, 23°C (ISO 179-1eA)	max. 5 kJ/m <sup>2</sup>
	<i>Typical properties, not to be interpreted as specifications</i>	

**Processing information and recommendations** Standard PLA can be processed on conventional extrusion equipment and can be used as neat resin or as part of a compound to further optimize overall material properties. It is recommended to use a general purpose screw with L/D ratios between 24 and 32. Pre-drying of the resin is recommended.

### Startup and shutdown

1. Purge the system with a polyolefin or a purging compound (e.g. Dyna-Purge, Clean LDPE) at its recommended temperature settings.
2. Reset the temperature settings to the recommended PLA temperature profile.
3. Purge with the PLA resin or PLA compound until stable processing is obtained free of contaminants.
4. Reset the temperature settings to the recommended purging compound temperature profile.
5. Purge with a polyolefin or a purging compound for 5 times the average residence time.

After completion of the run, PLA must be removed from the whole system. PLA can degrade into lactic acid causing corrosion of the equipment (e.g die plates).

<b>Recommended extruder temperature settings</b>	Feed zone	20-40 °C
	Melt zone	170-190 °C
	Mixing & conveying	190-210 °C
	Die head temperature	190-210 °C

*Typical settings may require optimization*

## Luminy® LX175

- Moisture and pre-drying** It is recommended to dry Luminy LX175 from the packaging for 4-6 hours at 85°C. Drying of standard PLA can be performed in a desiccant hot air dryer, with a dew point of -40°C or less. It is recommended to reduce the moisture content before melt processing to a level less than 250ppm and preferably less than 100 ppm, measured by e.g. Karl-Fischer or Brabender aquatrac method. Predrying is in particular important prior to injection molding, film and sheet production. Moisture causes hydrolysis of the PLA polymer during melt processing, resulting in reduced mechanical performance in the final part.
- Storage conditions** It is recommended to store PLA polymers in its closed, original moisture-barrier packaging at temperatures below 50°C. Storage in direct sunlight should be avoided. The supplied PLA polymer pellets are typically semi-crystalline, unless otherwise stated.
- Packaging** Luminy LX175 is available in 700 kg aluminum-lined octabins.
- Compostability** Composting of organic waste helps to divert organic waste from landfill or incineration. Composting is a biological process in which organic wastes are degraded by microorganisms into carbon dioxide, water and humus, a soil nutrient. Corbion PLA polymers are in compliance with the EN-13432 standard. Corbion PLA has been certified compostable by Vinçotte (OK Compost S478) and by European Bioplastics (Seedling). As the compostability of the end product is also dependent on the geometry of product, it is the responsibility of the manufacturer of the end product to ensure compliance with the regulations.
- Food contact status** Corbion PLA polymers are compliant with EU commission regulation 10/2011 of 14 January 2011 (and amendments) on plastic materials and articles intended to come into contact with food. Given the composition of the PLA polymers they can be considered suitable for use in food contact applications. Regarding lactic acid, it should be taken into account that it is to be considered as a dual use substance according Regulation 10/2011, since lactic acid is approved as a food additive (additive number E270). For lactic acid there are no Specific Migration Limits set in Regulation 10/2011. The regulation does include an overall migration limit of 10 mg/dm<sup>2</sup> of the overall migration from finished plastic articles into food. It is the responsibility of the manufacturer of the final product, when intended as a food contact product, to determine that the use of the product is safe and also suitable for the intended application. While it is Corbion's conclusion that the above mentioned polymers are permitted, it is the final product which must meet the given regulations and the manufacturer should take responsibility to check if the final product is in compliance with these Regulations.