

# Luminy® LX-175 "Raw PLA" Technical & Safety Data Sheet

Product Name: IIID MAX Luminy® LX-175  
Date of issue: 6/17/2022

## 1. Identification of the substance/preparation and of the company

1.1 Trade name: Luminy® LX-175

1.2 Use of the product: PLA homopolymer suitable for film extrusion, thermoforming, or fiber spinning.

1.3 Description: PLA is a biobased polymer derived from natural resources and offers a significant reduction in carbon footprint compared to oil-based plastics. Compared to standard PLA, these PLA homopolymers have higher melting points and an increased rate of crystallization. As a result, compounds containing PLA homopolymers are suitable for the production of semicrystalline parts, which exhibit a higher temperature resistance.

1.4 Manufacturer: Total-Corbion

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## 2. Composition/properties

Physical properties	Method	Typical value
Density	Literature value	1.24 g/cm <sup>3</sup>
Melt flow index	ISO 1133-A (210°C/2.16kg)	8 g/10 min
Melt flow index	ISO 1133-A (190°C/2.16kg)	3 g/10 min
Stereochemical purity	Total Corbion PLA method	≥ 99% (L-isomer)
Appearance	Visual	Crystalline white pellets
Residual monomer	Total Corbion PLA method	≤ 0.3%
Water / moisture	Coulometric Karl-Fischer	≤ 400 ppm
Melting temperature	DSC	175°C
Glass transition temperature	DSC	60°C
Mechanical properties	Method	Typical value
Tensile modulus	ISO 527-1	3500 MPa
Tensile strength	ISO 527-1	50 MPa
Elongation at break	ISO 527-1	≤ 5%
Charpy notched impact, 23°C	ISO 179-1eA	≤ 5 kJ/m <sup>2</sup>
Heat deflection temp, amorphous <sup>2</sup>	ISO 75-1	60°C
Heat deflection temp, crystalline <sup>2</sup>	ISO 75-1	105°C

## 3. Moisture & pre-drying

3.1 It is recommended to dry Luminy® LX175 from the packaging for 4-6 hours at 100°C.

3.2 Drying of semi-crystalline PLA homopolymer can be performed in a desiccant hot air dryer, with a dew point of -40°C or less.

3.3 Pre-drying is in particular important prior to injection molding, film, and sheet production.

3.4 Moisture causes hydrolysis of the PLA homopolymer during melt processing, resulting in reduced mechanical performance in the final part.

3.5 According to the Karl-Fischer Aquatrac method, it is recommended to reduce the moisture content before melt processing to a level less than 250ppm and preferably less than 100 ppm.

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## 4. Processing Recommendations

4.1 Luminy LX175 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.

4.2 It is recommended to use a general-purpose screw with L/D ratios between 24 and 32. Pre-drying of the resin is recommended.

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### 4.4.1 Recommendations:

Pre-drying: 4-6 hours at 100°C

Feed zone: 20-40°C

Melt zone: 180-190°C

Mixing & conveying: 190-210°C

Die head temperature: 190-210°C

## 5. Packaging & Storage Conditions

5.1 Luminy LX175 is available in: 1.5kg vacuumed sealed bags, 10kg sealed bags, 20 kg sealed bags, and 1250 kg form-stable aluminum-lined big bags (moisture level not guaranteed for sample bags).

5.2 It is recommended to store this raw PLA material in its closed, original moisture-barrier packaging at temperatures below 50°C.

5.3 Avoid storage in direct sunlight. The supplied PLA polymer pellets are typically semi-crystalline unless otherwise stated.

## 6. Material Compostability

6.1 Composting of organic waste helps to divert organic waste from landfills or incineration.

6.2 As the compostability of the end product is also dependent on the geometry of the product, it is the responsibility of the manufacturer of the end product to ensure compliance with the regulations.

6.3 Luminy PLA polymers follow the EN-13432 standard.

6.4 Luminy LX175 has been certified compostable by TUV Austria (OK Compost S478) and by European Bioplastics (Seedling 7W2030) up to a thickness of 2.3 mm.

6.5 Composting is a biological process in which organic wastes are degraded by microorganisms into carbon dioxide, water, and humus, a soil nutrient.

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## 7. Biobased Content

7.1 Luminy LX175 has a biobased content of 100% and a biobased carbon content of 100% according to EN16785-1 under certificate number DIC-00001.

7.2 This raw PLA material is certified 100% biobased according to ASTM D6866 under the USDA Bio Preferred Program.

## 8. Food Contact Status

8.1 In the European Union, Luminy® 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. Lactic acid is considered a dual-use substance since lactic acid is approved as a food additive (additive number E270).

8.2 There are no SMLs or SML(T)s for the ingredients used to produce Luminy® PLA. The regulation does include a migration limit of 10 mg/dm<sup>2</sup> on the overall migration from finished plastic articles into food.

8.3 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.

8.4 While it is Total Corbion PLA's conclusion that the above-mentioned polymers are permitted, it is the final product that must meet the given regulations and the manufacturer should take responsibility to check if the final product follows these regulations.

8.5 In the United States of America, Luminy® PLA as supplied by Total Corbion PLA has been evaluated and was found to be suitable for use in food contact applications. On 30 November 2018, FCN 001926 as applied for by Total Corbion PLA to the FDA became effective.

8.6 It is included in the list of effective notifications for FCNs on the website of FDA. The evaluation performed was in line with the requirements of Section 201(s) and Section 409 of the Federal, Drug and Cosmetic Act, and Parts 182, 184, and 186 of the Food Additive Regulations. Luminy® PLA neat resin is approved for all food types and conditions of use B through H.