Product Data Sheet
Luminy® LX930

Revision date	15 July 2022
Page	1 of 2
Date previous version	13 Oct 2021
Version & language	4/0977 - EN
Product availability	Global
Product status	Commercial

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DESCRIPTION

PLA is a biobased polymer derived from natural resources and offers a significant reduction in carbon footprint compared to oil-based plastics. Luminy® LX930 is a medium viscosity, medium flow, fiber-grade PLA that can be used as low melting component in sheath-core configurations.

TYPICAL PROPERTIES[1]

Physical properties	Method	Typical value
Density	Literature value	1.24 g/cm³
Melt flow index	ISO 1133-A (210°C/2.16kg)	18 g/10 min
Melt flow index	ISO 1133-A (190°C/2.16kg)	8 g/10 min
Stereochemical purity	TotalEnergies Corbion method	92% (L-isomer)
Appearance	Visual	Amorphous pellets
Residual monomer	TotalEnergies Corbion method	≤ 0.3%
Water / moisture	Coulometric Karl-Fischer	≤ 600 ppm
Melting temperature	DSC	130°C
Glass transition temperature	DSC	60°C
Mechanical properties	**Method**	**Typical value**
Tensile modulus	ISO 527-1	3500 MPa
Tensile strength	ISO 527-1	40 MPa
Elongation at break	ISO 527-1	≤ 5%
Charpy notched impact, 23°C	ISO 179-1eA	≤ 5 kJ/m2
Heat deflection temp, amorphous[2]	ISO 75-1	60°C

[1] Typical properties, not to be interpreted as specifications
[2] HDT B, 0.45MPa flatwise. HDT depends on processing conditions

PROCESSING INFORMATION & RECOMMENDATIONS

Luminy® LX930 can be processed on conventional extrusion spinning and drawing equipment. Thorough cleaning is highly recommended due to the incompatibility of PLA with a wide variety of polymers. In case of spinning PLA after another polymer resin, it is recommended to not install the spin pack until an even homogeneous flow of PLA is observed. Pre-drying of the resin is recommended. Typical melt spinning temperatures are 220-240°C.

MOISTURE & PRE-DRYING

It is recommended to dry Luminy® LX930 from the packaging for 24 hours at 40°C. Drying of standard PLA can be performed in a desiccant hot air dryer, with a dew point of -40°C or less. Drying at higher temperatures can result in pellet sticking and clogging of drying and conveying equipment. It is recommended to reduce the moisture content before spinning to a level preferably less than 100 ppm, measured by e.g. Karl-Fischer or Brabender aquatrac method. Moisture causes hydrolysis of the PLA polymer during melt processing, resulting in process instabilities and possibly decreased mechanical properties.

PACKAGING & STORAGE CONDITIONS

Luminy® LX930 is available in 1250 kg form-stable aluminum-lined big bags and 25 kg sample bags (moisture level not guaranteed for

sample bags). It is recommended to store PLA polymer 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.

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. Luminy® PLA polymers are in compliance with the EN-13432 standard. Luminy® LX930 has been certified compostable by TUV Austria (OK Compost S478) and by European Bioplastics (Seedling 7W2030) up to a thickness of 3.5 mm. 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.

OK compost TÜV AUSTRIA INDUSTRIAL S0478

7W2030 compostable

BIOBASED CONTENT

Luminy® LX930 has a biobased content of 100% (confidence level 1) and a biobased carbon content of 100% according to EN16785-1 under certificate number DIC-00001. Luminy® LX930 is certified 100% biobased according to ASTM D6866 under the USDA Biopreferred program.

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 100%

100% biobased PRODUCT DIC-00001

FOOD CONTACT STATUS

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). There are no SMLs or SML(T)s for the ingredients used to produce Luminy® PLA. The regulation does include an migration limit of 10 mg/dm2 on 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 TotalEnergies 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.

In the United States of America, Luminy® PLA as supplied by TotalEnergies Corbion 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 TotalEnergies Corbion to the FDA became effective. It is included in the list of effective notifications for FCNs on the website of the 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.

NOTICE REGARDING USE RESTRICTIONS

Unless specifically agreed to in writing, TotalEnergies Corbion will not knowingly market any product into any of the following commercial or developmental applications: (1) bottles or preforms, unless specific arrangements on recycling and end-of-life are in place, (2) microbeads used in personal care products, including without limitation, cosmetics or over-the-counter drugs, (3) components of products intended for human or animal consumption or (4) any application that is intended to be used inside the human body.

TotalEnergies Corbion