Synterra®

Synterra® Next generation PLA

Synterra® Poly Lactic Acid is a biobased polymer produced from GMO Free plant feedstock. By combining L & D Lactides in polymerisation Synterra® PLA becomes a high performance polymer.

Its main characteristics are High Temperature resistance, good chemical resistance, good UV resistance.
Also high gloss surface finish & high impact can be achieved.

Synterra® PLLA & PDLA grades are available for compounding purposes. For injection moulding different Synterra® IM grades are available.

Synterra® PLA improves the carbon footprint of your end products & its Global Warming Potential.

Synterra® PLA made from Puralact® Lactide was certified by MBDC EPEA on March 25th 2011 to meet the stringent requirements of Cradle to cradle SILVER SM product certification.

In addition to the use of inherent benign ingredients in the polymer recipe, the certification was only possible as the feedstock for Synterra® PLA is not originating from any Genetically Modified Organisms and is therefore a true GMO free product. We guarantee a BioBased content of 99%.

CM
CERTIFIED
cradletocradle

www.synterrapla.nl
www.synbratechnology.nl

Synbra

Synterra®

Properties Synterra® PLLA 1010 / PLLA 1510 : compounding

Physical properties	Test method	Units	Specification
Form			round pellets
Colour			Off white (crystallized)
Melt Flow Rate	ISO 1133 (190 °C, 2,16 kg)	g/600s	1010 : 12 (±2) / 1510 : 8 (±2)
Polymer Density	ISO 1183	g/cm^3	1.25
Moisture content			< 400 ppm
Melting temperature	DSC: ISO 11357	°C	175-180
Glass Transition temperature	DSC: ISO 11357	°C	55-60
L-Isomer		%	<1

Properties Synterra® PDLA 1010 : compounding

Physical properties	Test method	Units	Specification
Form			round pellets
Colour			Off white (crystallized)
Melt Flow Rate	ISO 1133 (190 °C, 2,16 kg)	g/600s	12 (±2)
Polymer Density	ISO 1183	g/cm^3	1.25
Moisture content			< 400 ppm
Melting temperature	DSC: ISO 11357	°C	175-180
Glass Transition temperature	DSC: ISO 11357	°C	55-60
L-Isomer		%	< 1

Properties Synterra® IM : Injection moulding

Physical properties	Test method	Units	Specification
Form			round pellets
Colour			Off white (crystallized)
Melt Flow Rate	ISO 1133 (190 °C, 2,16 kg)	g/600s	6 (±2)
Polymer Density	ISO 1183	g/cm^3	1,25
E-Modulus	ISO 527	MPa	3500
Tensile strength	ISO 527	MPa	50
Tensile strain at break	ISO 527	%	10
Vicat A (10N-50°C/h)	ISO 306/A	°C	160
Vicat B (50N-50°C/h)	ISO 306/B	°C	100
Heat Distortion Temp. B	0,9 MPa edge / ISO 075	°C	123
Charpy Impact (notched)	ISO 179/1eU	kJ/m^2	4,6
Impact (unnotched)	ISO 179/1eA	kJ/m^2	>89

Processing

- Temp. profile in the screw : 90-130-160-180-185-190-200-200 °C.
- Screw speed : 175 rpm.
- Drying of the **Synterra®** PLA is recommended prior to processing at a temperature of 60-80 °C for 4-6 hours, using dehumidified air with a dew point of -40 °C.

Cradle-to-Gate LCA Results for PLA

The cradle-to-gate impact of 1 kg PLA Example	
Non-Renewable Energy Use	38,488 MJ
Renewable Energy Use	55,763 MJ
Resources	0,79198 kg Crude Oil-Equiv.
Carbon Footprint incl sequestration	0,9387 kg CO_2-Equiv.
Acidification	0,026491 kg SO_2-Equiv.
Photochemical Oxidant Formation	0,0025757 kg Ethene-Equiv.
Eutrophication	0,012416 kg Phosphate-Equiv.

Synbra Technology bv • PO Box 37 • 4870 AA Etten-leur • Zeedijk 25 (Industrieterrein Zwartenberg)
4871 NM Etten-Leur• The Netherlands • Tel: +31(0)168 373 373 • Fax: +31(0) 168 373 363
info@synbra-tech.nl • www.synterrapla.nl • www.synbratechnology.nl

Synbra