

ArcBiox™ materials are bio-based and/or biodegradable compounds. These high-performance materials provide sustainable green alternatives for demanding technical applications.

## Description

### Impact resistant food grade PLA (Polylactic acid) for injection molding

#### Features

- Food contact suitable material
- Good surface quality
- Bio content 90%

#### Applications

- Alternative for ABS
- Housings
- Cosmetics

Property, Test Condition	Standard	Unit	Values
<b>Mechanical Properties</b>			
Flexural Strength, 23 °C*	ISO 178	MPa	92 (84)
Flexural Modulus, 23 °C*	ISO 178	MPa	3600 (3000)
Izod Notched Impact Strength, 23 °C*	ISO 180/A	kJ/m <sup>2</sup>	50 (7)
Izod Unnotched, 23 °C*	ISO 180/U	kJ/m <sup>2</sup>	NB (100)
Charpy Notched Impact Strength, 23° C	ISO 179/1eA	kJ/m <sup>2</sup>	
Charpy Unnotched, 23 °C	ISO 179/1eU	kJ/m <sup>2</sup>	
Tensile Stress at Yield, 23 °C*	ISO 527	MPa	50 (50)
Tensile Strain at Yield, 23 °C*	ISO 527	%	2 (2)
Tensile Stress at Break, 23 °C*	ISO 527	MPa	37 (30)
Tensile Strain at Break, 23 °C*	ISO 527	%	12 (80)
Tensile Modulus*	ISO 527	MPa	3500 (3000)
Ball Indentation Hardness	ISO 2039-1	N/mm <sup>2</sup>	
<b>Thermal Properties</b>			
Vicat Softening Temperature VST/B/50 (50N, 50 °C/h)	ISO 306	°C	
Heat Deflection Temperature A; (1.8 MPa)	ISO 75	°C	
Heat Deflection Temperature B; (0.45 MPa)*	ISO 75	°C	70 (53)
<b>Other Properties</b>			
Density	ISO 1183	g/cm <sup>3</sup>	1,2
Melt Flow Rate [200 °C/ 5 kg ]	ISO 1133	cm <sup>3</sup> /10min	10

Typical values for uncolored products. The properties stated above are not for specification purposes.

\* Mold temperature 110°C (30°C)

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## Processing

ArcBiox™ materials must be always dried before processing with dehumidifying dryer, due to fact that insufficient drying before processing will cause loss of mechanical properties. Please note that a combination of a very long drying time and high temperature may cause degradation and agglomeration of pellets and may cause yellowing.

Property, Test Condition	Standard	Unit	Values
<b>Processing</b>			
Linear Mold Shrinkage (Note 4.)	ISO 294-4	%	0,5-0,9
Melt Temperature Range		°C	180-200
Feed Throat		°C	30-50
Feed Temperature		°C	170-190
Compression Section		°C	180-200
Metering Section		°C	180-200
Nozzle		°C	180-200
Mold Temperature Range; cooling time according to part (Note 1.)		°C	20-40
Mold Temperature Range; cooling time min. 50s (Note 2.)		°C	100-120
Injection Velocity		mm/s	medium
Back Pressure		bar	10-20
Drying Temperature, Dew point -40°C (Note 3.)		°C	80
Drying Time		h	5

Note 1. Mold Temperature Range; semi crystalline  $X_c < 20\%$ , cooling time according to part

Note 2. Mold Temperature Range; crystalline  $X_c > 35\%$ , cooling time min. 50s

Note 3. Moisture content less than 0.025% (250 ppm) is recommended to prevent loss of mechanical properties.

Note 4. Shrinkage value is measured from test part (4x70x150mm) that is moulded at 110°C mould temperature.

Change-over point should be always checked visually by setting holding pressure to 0 bar/MPa to avoid over filling and flashes. Part should be 95 – 98% filled before changing to holding pressure.

Use low MFR Polypropylene to clean the screw and barrel.

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