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

ABM COMPOSITE
Arctic Biomaterials

ArcBiox™ A2004

Technical data sheet

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
Mechanical Properties			
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/m²	50 (7)
Izod Unnotched, 23 °C*	ISO 180/U	kJ/m²	NB (100)
Charpy Notched Impact Strength, 23° C	ISO 179/1eA	kJ/m²	
Charpy Unnotched, 23 °C	ISO 179/1eU	kJ/m²	
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/mm²	
Thermal Properties			
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)
Other Properties			
Density	ISO 1183	g/cm³	1,2
Melt Flow Rate [200 °C/ 5 kg]	ISO 1133	cm³/10min	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
Processing			
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.