

Kareline® PLMS6040

Polylactic Acid

Plasthill Oy

Message:

Kareline® PLMS composites are injection mouldable natural fibre reinforced thermoplastic composites, which are biologically degradable, when subjected to the right conditions:

Excellent oxidation-, colour- and molecular weight stability in the melt

Compostable: The matrix polymer (PLA) used in the composite is certified according to DIN EN 13432:2000-12 and ASTM D 6400. Natural fibres used certified as biodegradable and compostable.

Polymer used is on renewable monomers

Fibres used are based on sustainable produced, renewable, environment certified (PEFC) forest resources from non-rainforest sources.

The matrix plastic of Kareline® PLMS composites is polylactic acid (PLA). The fibre used is ECF bleached long fibre Nordic soft wood pulp (cellulose). The fibre content of Kareline® PLMS composites is 10-50 weight% (for example Kareline® PLMS6040, Kareline® PLMS7030). Customer tailor made grades are also available.

PLMS is hydrolysed autocatalytically in humid environments at temperatures above 60°C. The subunit lactic acid is liberated to be used by micro-organisms as food. The speed of biodegradation depends on the thickness of the moulded article and on the ambient temperature.

The material can be regarded as CO₂-neutral and renewable, because lactic acid used is made out of natural sugar resources, which are in turn made by photosynthesis out of CO₂ in plants, just like the fibres used are from renewable forest resources.

Kareline® PLMS composites are suitable for e.g. compostable products, products used in cemeteries, disposables and packaging.

General Information			
Filler / Reinforcement	Wood fiber		
Features	Low friction coefficient		
	Comstable		
	Updatable resources		
	Sprayable		
	Machinable		
	Good color stability		
	Good wear resistance		
	Thermal insulation		
	Biodegradable		
	Low shrinkage		
Uses	Excellent appearance		
	Packaging		
Agency Ratings	Compost products		
	ASTM D 6400		
Appearance	DIN EN 13432		
	Brown		
Forms	Particle		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.36	g/cm ³	ISO 1183

Melt Mass-Flow Rate (MFR) (200°C/10.0 kg)	90	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (200°C/10.0 kg)	76.8	cm ³ /10min	ISO 1133
Molding Shrinkage	0.20	%	
Water Absorption (Equilibrium, 23°C, 50% RH)	1.1	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale, 23°C)	122		ISO 2039-2
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress	75.0	MPa	ISO 527-2
Tensile Strain (Break)	1.3	%	ISO 527-2
Flexural Modulus	7400	MPa	ISO 178
Flexural Stress	98.6	MPa	ISO 178
Flexural Strain at Flexural Strength	1.3	%	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	11	kJ/m ²	ISO 179
Thermal	Nominal Value	Unit	
Continuous Use Temperature	-25.0 - 90.0	°C	
Flammability	Nominal Value		Test Method
Flame Rating	HB		UL 94
Injection	Nominal Value	Unit	
Drying Temperature	75.0	°C	
Drying Time	8.0	hr	
Rear Temperature	180	°C	
Middle Temperature	185	°C	
Front Temperature	185	°C	
Nozzle Temperature	200	°C	
Processing (Melt) Temp	< 210	°C	
Mold Temperature	5.00 - 20.0	°C	
Injection Pressure	< 100	MPa	
Injection instructions			
Feed Throat Temperature: <30°C			

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