

NONOILEN® FB 3021-4

TECHNICAL DATASHEET

Basic description

NONOILEN® is thermoplastic material based on biodegradable polymer blends made from renewable raw materials. NONOILEN®, produced by PANARA s.r.o., undergoes biodegradation under various natural conditions (e.g. at home compost, industrial compost, soil, seawater) according to material composition.

Application segment

NONOILEN® FB 3021-4 is optimised for film blowing technology.

Physical form

Cylindrical pellets

Composition

Major components	PLA, PHB polymers
Minor components	Biodegradable plasticiser(s) and other additives

Material properties (typical values, do not perform a specification of given grade)

Parameter	Test method	Unit	Value	
Rheological properties				
Melt flow rate MFR	180°C, 2.16 kg	ISO 1133	18,00	
	180°C, 5.00 kg	ISO 1133	42,00	
	190°C, 2.16 kg	ISO 1133	25,88	
	190°C, 5.00 kg	ISO 1133	57,20	
Melt volume rate MVR	180°C, 2.16 kg	ISO 1133	16,44	
	180°C, 5.00 kg	ISO 1133	38,35	
	190°C, 2.16 kg	ISO 1133	23,42	
	190°C, 5.00 kg	ISO 1133	51,74	
Melt density	180°C	ISO 1133	1,10	
	190°C		1,11	
Mechanical properties				
Density at 23°C	ISO 1183	g/cm ³	1,23	
Tensile strength	ISO 527	MPa	18	
Tensile strength at break		MPa	18	
Elongation at break		%	330	
Young modulus		GPa	0,2	
Charpy impact strength	23°C	ISO 179	kJ/m ²	N/A
	-30°C		kJ/m ²	N/A
Impact resistance - Dart drop test, 30µm thickness	ISO 7765-1	g	315	
Hardness	ISO 868	Shore D	N/A	

Parameter	Test method	Unit	Value	
Thermal properties				
Glass transition temperature	DSC	°C	28	
Melting point Tm1	DSC	°C	170	
Melting point Tm2	DSC	°C	N/A	
Crystallisation temperature	DSC	°C	77	
Heat deflection temperature	ISO 75, B	°C	N/A	
Vicat softening point VST	ISO 306, A/50	°C	N/A	
Properties after accelerated physical ageing (conditioning 1 hour at 100°C)				
Tensile strength	ISO 527	MPa	N/A	
Tensile strength at break	ISO 527	MPa	N/A	
Elongation at break	ISO 527	%	N/A	
Young modulus	ISO 527	GPa	N/A	
Impact resistance Charpy	ISO 179	23°C	kJ/m ²	N/A
		-30°C	kJ/m ²	N/A
Hardness	ISO 868	Shore D	N/A	
Barrier properties				
Permeation of N ₂			N/A	
Permeation of O ₂			N/A	
Permeation of CO ₂			N/A	
Permeation of H ₂ O vapour			N/A	
Biodegradation				
Degree of disintegration after 90 days incubation	58°C (thermophilic)	ISO 20200	%	100
	25°C (mesophilic)		%	75
Time to 100% disintegration	58°C (thermophilic)		days	28
	25°C (mesophilic)		days	N/A

Storage and handling

NONOILEN® is delivered in 20kg barrier bags. The original package should be stored at humidity up to 60% and temperature in range 10 – 30°C. Pellets are pre-dried. Before processing, drying for 1 hour at 70°C is recommended. The moisture content should be below 1000 ppm (0,1%).

Processing conditions

Standard film blowing line for LDPE processing is recommended. Melt temperature should not exceed 200°C, optimally it should range from 150 to 170°C on the head.

Special additives

Colour masterbatches and other additive masterbatches can be used for processing as well as other properties modification. The Clariant masterbatches for NONOILEN® are recommended.