NONOILEN® FB 3046-4

TECHNICAL DATASHEET

Last actualisation: **9/2022**

Basic description

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

Application segment

NONOILEN® FB 3046-4 is optimised for film blowing technology.

Physical form

Cylindrical pellets

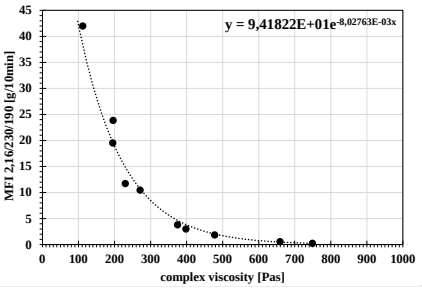
Composition

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				
Complex viscosity (measured using oscillating rheometer)	160°C	Internal method	Pas	139
	180°C	Internal method		90
Shrinkage			%	N/A
Mechanical properties				
Density at 23°C		ISO 1183	g/cm^3	1,2
Tensile strength		ISO 527	MPa	31,0
Tensile strength at break			MPa	31,0
Elongation at break			%	296
Young modulus			GPa	0,56
Charpy impact strength un-notched	23°C	ISO 179	kJ/m^2	N/A
Charpy impact strength un-notched	23°C notched		kJ/m^2	N/A
Impact resistance - Dart drop test, 50µm thickness		ISO 7765-1	g	64

MFI is not relevant parameter for Nonoilen materials because measurement system for MFI does not allow to determine true flow properties of Nonoilen blend. The best testing method is represented by oscillating rheometry which give values of complex viscosity. For better understanding relation between complex viscosity and commonly using MFI parameter, correlation curve between both parameters is in Figure on right side. MFI values represent there MFI of LDPE at 190°C or PP at 230°C under 2.16 kg loading. Viscosity was measured at low shear rates (15/s), so at real high shear rate during injection, Nonoilen will flow much easily.



Parameter		Test method	Unit	Value
Thermal properties				
Glass transition temperature		DSC	°C	22
Melting point Tm1		DSC	°C	166
Melting point Tm2		DSC	°C	N/A
Crystallisation temperature		DSC	°C	56
Heat deflection temperature		ISO 75, B	°C	N/A
Vicat softening point VST		ISO 306, A/50	°C	N/A
Barrier properties				
Permeation of N_2				N/A
Permeation of O_2 (OTR)	23°C, 50%RH, 0,21bar	internal	$cm^3/(m^2.day)$	N/A
Permeation of CO_2				N/A
Permeation of H_2O vapour	23°C, 50%RH	internal	$mg(m^2.day)$	N/A
Biodegradation				
Degree of disintegration after 90 days incubation	58°C (thermophilic)	ISO 20200	%	*
	25°C (mesophilic)		%	*
Time to 100% disintegration	58°C (thermophilic)		days	*
	25°C (mesophilic)		days	*
Total microbial decomposition	N/A			

*** Under certification process**

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 170°C, optimally it should range from 140 to 160°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.