

NonOilen® FB 3046-5

TECHNICAL DATASHEET

Last actualisation: **11/2024**

Basic description

NonOilen® is thermoplastic material based on biodegradable polymer blends made of 100% 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 3046-5 is optimised for film blowing technology.

Certification

OK compost INDUSTRIAL – (EN 13432, certified by TÜV AUSTRIA Belgium)

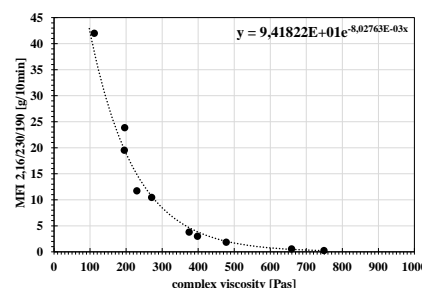


Material properties (typical values, do not perform a specification of given grade)

Parameter	Test method	Unit	Value
Rheological properties			
Complex viscosity (measured using oscillating rheometer)	160°C	Internal method	Pas
	180°C	Internal method	1540
Mechanical properties			
Density at 23°C	ISO 1183	g/cm ³	1,2
Tensile strength	MD	MPa	13
	TD	MPa	11
Tensile strength at break	MD	MPa	22
	TD	MPa	17
Elongation at break	MD	%	290
	TD	%	330
Tensile modulus	MD	GPa	0,2
	TD	GPa	0,1
Tear strength	MD	ISO 6383	N/mm
	TD	ISO 527	N/mm
Impact resistance – Dart drop test, 23 °C, 45 µm	ISO 7765-1	g	83

(MD) = Machine direction; (TD) = Transversal direction

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	38	
Melting point	DSC	°C	168	
Crystallisation temperature	DSC	°C	86	
Barrier properties				
Permeation of O ₂ (OTR)	23°C, 0 % RH, 1bar, 150 µm	internal	cm ³ /(m ² .day)	257
Permeation of H ₂ O vapour	23°C, 85 % RH, 150 µm	internal	mg(m ² .day)	17

Storage and handling

NonOilen® is supplied in 25 kg foil-aluminum bags or 1-ton octabins. The original packaging should be stored in a humidity up to 60% and at a temperature between 10°C - 30°C, protected from heat and direct sunlight. The pellets are pre-dried, but it is recommended to dry them for 2 hours at 60°C before processing. The moisture content should be kept below 1000 ppm (0.1%).

Special additives

PLA color masterbatches can be used during processing. These masterbatches should also be certified in accordance with EN 13432. Please be aware that the use of masterbatches may affect the mechanical and optical properties of the final product.

Start-up and purging

Start by purging the extruder with a suitable polyolefin (e.g., MFR 20-30 g/10 min) for approximately 15-30 minutes to remove any residual material. Adjust the processing temperature to the recommended settings. Once the temperature is within 10°C of the target range, initiate the transition to NonOilen®.

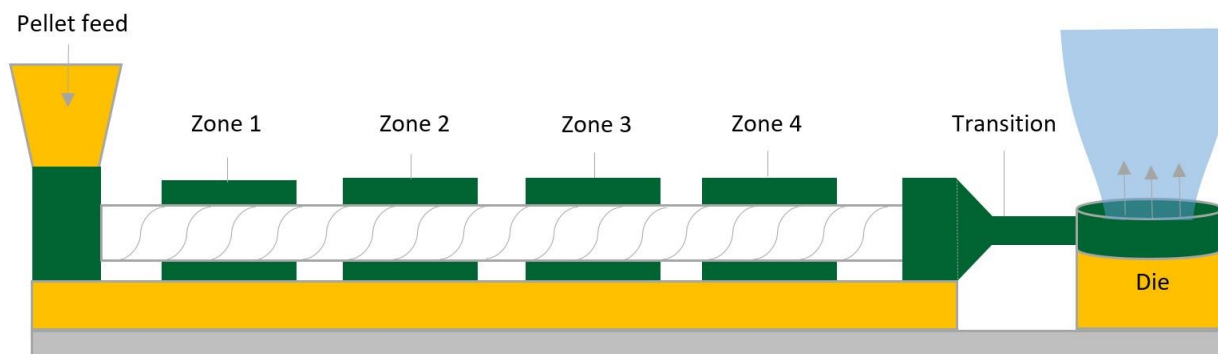
Interruption and shut-down

In case of a prolonged interruption, reduce the screw speed to approximately 10 rpm. For longer period, please purge the extruder with the same polyolefin used in the start-up procedure. Never leave NonOilen® product in the extruder for an extended period, such as overnight.

Processing conditions

Standard film blowing line for LDPE processing is recommended. Melt temperature should not exceed 200°C, optimally it should range from 145 to 165°C on the die. The feeding zone must be cooled. IBC is recommended. NonOilen® FB 3046-5 is suitable for film blowing extrusion in thicknesses 20 - 150 µm. Film blowing process parameters have to be adjusted according to specifics of production line and product shape.

Zone 1	Zone 2	Zone 3	Zone 4	Transition	Die
160-180 °C	160-180 °C	160-180 °C	160-180 °C	160-180 °C	145-165 °C



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