NonOilen® EBM 3361-8

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® EBM 3361-8 is optimised for extrusion blow moulding technology.

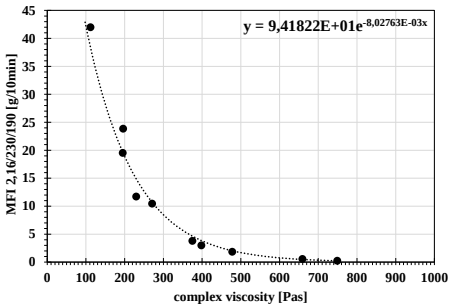
Certification

OK compost HOME – in progress (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	1400
	180°C	Internal method		800
Shrinkage			%	1-1,5
Mechanical properties				
Density at 23°C		ISO 1183	g/cm^3	1,2
Tensile strength		ISO 527	MPa	17
Tensile strength at break			MPa	10
Elongation at break			%	23
Tensile modulus			GPa	0,6
Flexural modulus		ISO 178	GPa	0,98
Charpy impact strength un-notched	23°C	ISO 179	kJ/m^2	94
Charpy impact strength notched	23°C		kJ/m^2	6
Charpy impact strength un-notched	-30°C		kJ/m^2	13

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.



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Parameter		Test method	Unit	Value
Thermal properties				
Glass transition temperature		DSC	°C	-14
Melting point		DSC	°C	175
Crystallisation temperature		DSC	°C	98
Heat deflection temperature		ISO 75, B	°C	70
Vicat softening point VST		ISO 306, A/50	°C	N/A
Barrier properties				
Permeation of O_2 (OTR)	23°C, 0 % RH, 1bar, 150 µm	internal	$cm^3/(m^2.day)$	85
Permeation of H_2O vapour	23°C, 85 % RH, 150 µm	internal	$mg(m^2.day)$	N/A

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

Melt temperature should not exceed 190°C, optimally it should range from 150 to 170°C (barrel) and 175°C on the nozzle. The feeding zone must be cooled. Mould temperature in range between 30 -70°C is recommended according to material composition and product geometry. If homogeneity of the melt is not perfect (unmelted pellets), higher back pressure on the barrel is recommended more than higher temperature

Zone 1	Zone 2	Zone 3	Zone 4	Transition	Die head	Nozzle	Mould
150-175°C	150-170°C	150-170°C	150-170°C	170°C	170°C	170-175°C	30°C