

# NonOilen® IBM 3056-2

## TECHNICAL DATASHEET

Last actualisation: 7/2023

### 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® IBM 3056-2 is optimised for injection blow moulding technology.

### Physical form

Cylindrical pellets

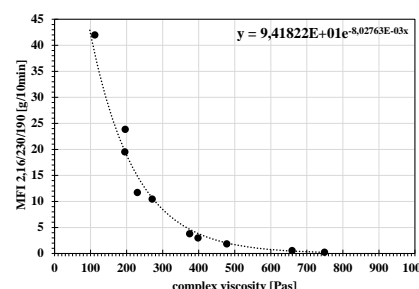
### Composition

Major components	PLA, PHA 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	
<b>Rheological properties</b>				
Complex viscosity (measured using oscillating rheometer)	160°C	Internal method	Pas	716
	180°C			441
Shrinkage		%	N/A	
<b>Mechanical properties</b>				
Density at 23°C	ISO 1183	g/cm <sup>3</sup>	1,2	
Tensile strength	ISO 527	MPa	43	
Tensile strength at break		MPa	26	
Elongation at break		%	11	
Tensile modulus		GPa	2,5	
Flexural modulus	ISO 178	GPa	3,3	
Charpy impact strength un-notched	ISO 179	kJ/m <sup>2</sup>	23°C	15
Charpy impact strength notched				2
Charpy impact strength un-notched				-30°C

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
<b>Thermal properties</b>			
Glass transition temperature	DSC	°C	45
Melting point	DSC	°C	170
Crystallisation temperature	DSC	°C	105
Heat deflection temperature	ISO 75, B	°C	110
Vicat softening point VST	ISO 306, A/50	°C	140
<b>Barrier properties</b>			
Permeation of O <sub>2</sub> (OTR)	23°C, 0 % RH, 1 bar, 150 µm	internal	cm <sup>3</sup> /(m <sup>2</sup> .day)
Permeation of H <sub>2</sub> O vapour	23°C, 85 % RH, 150 µm	internal	mg(m <sup>2</sup> .day)
<b>Biodegradation</b>			
Industrial compost	ISO 14855		OK compost Industrial TÜV Austria
Home compost			N/A
Biodegradability at soil conditions	ISO 17556		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%).

### Special additives

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

### Processing conditions

Melt temperature should not exceed 190°C, optimally it should range from 155 to 165°C (barrel) and 175°C on the nozzle. 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	Nozzle	Mould
150-175 °C	150-175 °C	150-175 °C	150-175 °C	100-110 °C

