

Polyamide 46

with carbon fibers and PTFE, natural color (black)

Physical properties		Test method	Specimen	Units	Typical value
Specific gravity		ISO 1183-3		g/cm ³	1,42
Water absorption	23°C / 24h	ISO 62	ISO 3167 A	%	<1,0
Linear mould shrinkage		DIN 16742	ISO 3167 A	%	0,1-0,2

Mechanical properties at 23°C / 50% rh

Tensile strength	dry, @50 mm/min	ISO 527	ISO 3167 A	MPa	240
Elongation @Fmax.	dry, @50 mm/min	ISO 527	ISO 3167 A	%	1,5
Tensile modulus	dry, @1 mm/min	ISO 527	ISO 3167 A	GPa	24
Flexural strength	dry, @10 mm/min	ISO 178	ISO 3167 A	MPa	340
Flexural elongation @Fmax.	dry, @10 mm/min	ISO 178	ISO 3167 A	%	2
Flexural modulus	dry, @2 mm/min	ISO 178	ISO 3167 A	GPa	20
Impact strength	dry	ISO 179 1eU	80x10x4mm	kJ/m ²	55
Impact strength, notched	dry	ISO 179 1eA	80x10x4mm	kJ/m ²	9

Thermal properties

Vicat softening temp.	VST A	DIN ISO 306	ISO 3167 A	°C	290
Continuous service temp.	20.000 h	IEC 60216	ISO 3167 A	°C	150
Service temperature	during lifetime max. 200h		ISO 3167 A	°C	160
CLTE, longitudinal		ISO 11359	10x8x4 mm	10 ⁻⁵ /K	2,2

Electrical properties

Insulation resistance	strip electrode R25	DIN EN 62631-3-3	ISO 3167 A	Ω	<10 ⁵
Surface resistance	ROB	DIN EN 62631-3-2	Ronde 60x4mm	Ω	<10 ⁴

Main features

Very strong and stiff parts; low coefficient of thermal expansion. Improved friction and wear behaviour. Optimised for dry running operations. Electrically conductive, suitable for continuous discharging of statically-generated electricity.

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Recommended processing parameters

Delivery form & storage

Unless indicated otherwise, the material is delivered as 3mm long pellets in sealed bags on pallets. Preferably storage should be effected in dry and normally temperatured rooms.

Predrying

Due to moisture absorption from the environment, pre-drying of the material is recommended. Moisture could lead to molecular degradation and surface defects (e.g. smearing). Excessively high predrying temperatures may cause discoloration. Recommended moisture content before processing: <0.05%

Dryer type	Temperature °C	Drying time in h
Dehumidifying dryer	80	2 - 8
Vacuum Dryer	80	2 - 12

Recommended processing parameters

In general this product can be processed on conventional injection moulding machines while observing the usual technical guidelines. Any added fibrous materials or fillers may have an abrasive effect. In this case the cylinder and screw should be protected against wear as is usual in the processing of reinforced thermoplastic materials. Lengthy dwell times for the melts in the cylinder should be avoided. Lower the temperatures during interruptions!

Mold	Melt temperature	Nozzle	Zone 3	Zone 2	Zone 1
90 - 130 °C	310 °C	290 - 320 °C	300 - 320 °C	285 - 315 °C	285 - 310 °C

Additional information

The melt residence time of this material should not exceed 4 minutes. Due to the fast crystallization of this product a high injection speed is recommended. A good mold venting is required to avoid burned marks (diesel effect). For a better surface finish, best mechanical performance and stable dimensional parts, a mold temperature on the higher side (up to 150 °C) is recommended. Processing temperatures above 330°C may very rapidly cause thermal damage and should therefore be avoided. The processing notes provided merely represent a recommendation for general use. Due to the large variety of machines, geometries and volumes of parts, etc., it may be necessary to employ different settings according to the specific application. Please contact us for further information.