

Technical section Nylon (PA) 6

Nylon (PA) 6 - Material Data Sheet

Used on: All Harnessflex NC and CTPA nylon conduits

Properties	Test Method	Value	Unit
General			
Density	ISO 1183	1.13	g/cm ³
Melting point	ISO 11357-1/-3	220	°C
Mechanical			
Tensile strength	ISO 527	55 (con)	MPa
Elongation at break	ISO 527	>50 (con)	%
Youngs modulus	ISO 527	3100 (Dry)	MPa
Charpy impact strength	ISO 179	DNB (Dry)	kJ/m ²
Charpy notched impact strength	–	11 (Dry)	kJ/m ²
IZOD impact strength	ISO 180C	DNB (Dry)	kJ/m ²
IZOD notched impact strength	ISO 180A	4 (Dry)	kJ/m ²
Thermal			
Heat distortion temperature-A	ISO 75	100	°C
Heat distortion temperature-B	ISO 75	>200	°C
Flammability			
Flammability	UL94	HB	N/A
Electrical			
Dielectric strength	IEC 243	14 (Dry)	MV/m
Surface resistivity	IEC 93	15 (Dry)	log10Ω
Volume resistivity	IEC 93	15 (Dry)	log10Ω
Comparative tracking index	IEC 112	>600	V

NOTE: All tests undertaken at 23°C where applicable

Notes

- DNB = Did not break
- Dry = Dry as moulded
- Con = Conditioned 168hrs @ 23°C, 50% RH

Chemical resistance

Nylon 6 Harnessflex conduits are resistant to all underbonnet oils, greases, fuels, cleaning fluids and synthetic fluids. Like all Nylons they are resistant to weak acids but not resistant to strong or oxidizing acids.

Technical section Peek (Polyetheretherketone)

PEEK (Polyetheretherketone) - Material Data Sheet

Used on: PKC conduit

Properties	Test Method	Value	Unit
General			
Density	ISO 1183	1.32	g/cm ³
Melting point	DEC	343	°C
Mechanical			
Tensile strength	ISO 527	97	MPa
Elongation at break	ISO 527	<60	%
Youngs modulus	ISO 527	3600	MPa
Charpy impact strength 2mm notch	ISO 179	35	kJ/m ²
Charpy impact 0.25mm notch	ISO179	8.2	kJ/m ²
IZOD impact strength	ISO 180	DNB	kJ/m ²
IZOD impact strength 0.25mm notch	ISO 180	6.4	kJ/m ²
Thermal			
Heat distortion temperature-A	ISO 75	152	°C
Heat distortion temperature-B	ISO 75	–	°C
Flammability			
Flammability	UL94	V0	N/A
Electrical			
Dielectric strength	IEC 243	190	kV/m-1
Surface resistivity	IEC 93	–	–
Volume resistivity	IEC 93	4.9	10 ¹⁶ Ω cm
Comparative tracking index I	EC 112	150	V

NOTE: All tests undertaken at 23°C where applicable

Notes

- DNB = Did not break
- This linear aromatic polymer is semi-crystalline and is widely regarded as the highest performance thermoplastic material currently available

A summary of key physical properties is as follows:

High temperature performance

PEEK polymer and compounds typically have a glass transition temperature of 143°C and a melting temperature of 343°C and a Continuous Use Temperature of 260°C (UL 746B).

Wear resistance

PEEK polymer has excellent friction and wear properties exhibiting outstanding wear resistance over wide ranges of pressure, velocity, temperature and counterfacial roughness.

Chemical resistance

PEEK polymer has excellent resistance to a wide range of chemical environments, even at elevated temperatures. The only common environment which dissolves PEEK polymer is concentrated sulphuric acid.

Fire, smoke and toxicity

PEEK polymer is highly stable and requires no flame-retardant additives to achieve a V-0 rating at 1.4mm thickness. The composition and inherent purity of the material results in extremely low smoke and toxic gas emission in fire situations.

Hydrolysis resistance

PEEK polymer and compounds are not chemically attacked by water or pressurized steam. Components which are constructed from these materials retain a high level of mechanical properties when continuously conditioned in water at elevated temperatures and pressures.

Electrical properties

The electrical properties of PEEK™ polymer are maintained over a wide frequency and temperature.