



Product information

Product full identity:

Polyetheretherketone

PEEK offers a unique combination of high mechanical properties, temperature resistance (-50°C to +250°C) and excellent chemical resistance, making it the most popular advanced plastics material. PEEK is also self-extinguishing according to UL 94 VO and is food compliant.

Properties

- » Very stable at high temperatures
- » Replaces stainless steel dry running parts
- » Excellent Chemical Resistance
- » Good resistance to radiation (Gamma & X-Ray)
- » Low flammability
- » High mechanical strength
- » Food compliant

Applications

- » Seals
- » Back up rings
- » Valves
- » Medical
- » Aerospace

This document contains

- » Technical Datasheet (Page 2)
- » Chemical Datasheet (Page 3)
- » Safety Datasheet (Pages 4-5)

For any further information regarding food, fire and water certificates then please contact the sales team on 0114 256 0889

Technical Properties

Physical Properties	Test	Unit	Result
1. Specific gravity	ISO 1183-1	g/cm ³	1.31
2. Water absorption till saturation 23°C		%	0.45
3. Maximum service temp. Upper temp limit (no stronger mechanical stress involved)	-	°C	310
Long Term	-	°C	250
Lower temp limit	-	°C	-50
Mechanical Properties	Test	Unit	Result
1. Tensile strength at yield	ISO 527-1/-2	MPa	115
2. Elongation at yield	-	%	-
4. Tensile strength at break	ISO 527-1/-2	%	17
5. Unnotched impact strength	ISO 179-1/1eU	kJ/m ²	no break
6. Notch impact strength	ISO 179-1/1eA	kJ/m ²	3.5
7. Ball indentation / Rockwell hardness	ISO 2039-1/-2	MPa	210 / M105
8. Shore-D	-	-	-
9. Flexural strength	-	MPa	-
10. Modulus of elasticity	ISO 527-1/-2	MPa	4300
Thermal Properties	Test Method	Unit	Result
1. Vicat-softening point VST/B/50	-	°C	-
2. Heat deflection temperature HDT/B	ISO 75-1/-2	°C	160
3. Coefficient of linear thermal expansion 23°C - 100°C	-	m/(m.K)	50 x 10 ⁻⁶
4. Thermal conductivity at 23°C	-	W/(m*K)	0.25
Electrical Properties	Test Method	Unit	Result
1. Volume resistivity	IEC 6093	Ω x m	>10 ¹⁴
2. Surface resistivity	IEC 6093	Ω	>10 ¹³
3. Dielectric constant at 1MHz	-	-	-
4. Dielectric loss factor at 1 MHz	IEC 60250	10 ⁶ Hz	0.002
5. Electrical strength	IEC 60243-1	kV/mm	24
6. Comparative tracking index (CTI)	IEC 60112	-	150
Additional Data	Test Method	Unit	Result
1. Bondability	-	-	-
2. Food compliance	FDA	-	+
3. Flammability	UL 94	-	V-0

All The above information is for guide purposes only. The data has been taken from standard test results provided by our manufacturers.

Key:

Yes	Limited	No data
+	0	-

Chemical Properties

Agent	Conc %	Working Temp		Agent	Conc %	Working	Temp
		20°C	60°C				
Acetic Acid		+	+	Hydrofluoric acid	40	-	-
Acetone	100	+	+	Hydrogen peroxide	10	+	
Ammonia	Conc.	+	+	Hydrogen Sulphide		+	
Ammonium chloride		+	+	Isopropyl Alcohol	100	+	+
Amyl Alcohol		+	+	Mercurochrome			
Benzene		+	+	Methyl alcohol	100	+	+
Bleaching Solution	12,5 Cl	+		Methyl ethyl ketone	100	+	+
Boric Acid	100	+	+	Methylene chloride	100	+	
Brake Fluid		+	+	Nitric acid	10	+	+
Butyl Acetate		+	+	Nitric acid	30	o	
Calcium Chloride		+	+	Nitrobenzine		+	
Carbon disulphide	100	+	+	Oxalic Acid		+	+
Carbon Tetrachloride		+	+	Ozone, gas	ca. 0,5 ppm	+	
Chlorine, gas	100	+		Paraffin Oil	100	+	
Chlorobenzene	100	+	+	Perchlorethylene		+	+
Chloroform		+	+	Petroleum	100	+	
Citric Acid	10	+	+	Petroleum, aromatic free	100		
Cresol		-	-	Phenol, aqu	ca.9	o	
Cyclohexanone	100	+	+	Phosphoric Acid	50	+	+
Cyclohexene	100	+	+	Potassium hydroxide liquor	50	+	+
Diesel Fuel		+	+	Propyl alcohol		+	+
Ethyl acetate	100	+		Pyridine		+	+
Ethyl alcohol	96	+		Silicone oil		+	+
Ethylene Chloride	100	+	+	Sodium carbonate, aqu		+	+
Formic Acid	10	o	o	Sodium chloride, aqu		+	+
Frost protection agent				Sodium Hydroxide liquor	60	+	+
Fuel, aromatic free		+		Sodium hydrogen sulphite		+	
Glycerine	100	+	+	Sodium nitrate, aqu		+	+
Glycol	100	+	+	Sodium thiosulfate		+	+
Heating oil				Sulphuric Acid	96	-	-
Heptane	100	+	+	Tetrahydrofuran	100	+	+
Hydrochloric acid	10	+	o	Toluene	100	+	+
Hydrochloric acid	40	+	+	Trichlorethylene	100	+	+
				Xylene		+	+

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Key:

Yes	Limited	No data
+	o	-

Safety Properties

Substance / preparation and company detail

Polyetheretherketone (PEEK)
Direct Plastics Limited
Rother Valley Way,
Holbrook,
Sheffield,
S20 3RW
0114 2560889

First-fighting measures

Suitable extinguishing media: Water, foam, dry chemical, CO₂. Adapted to the nature and extend of fire.

Hazardous decomposition products: The main products formed in case of overheating and combustion are carbon monoxide and carbon dioxide. Formation of further hazardous decomposition products depends upon the fire conditions and cannot be excluded.

Special protective equipment: Firemen should wear self-contained breathing apparatus and protective clothing to prevent contact with skin and/or eyes. If exposed to combustion fumes in a high concentration, bring the victim into fresh air. If molten material contacts skin, cool rapidly with cold water and obtain medical attention for removal of adhering material and treatment of the burn.

Handing and storage

Machining: During machining of the semi-finished products, evacuate swarf to prevent slipping or tripping hazard and observe the maximum allowable concentration of dust and formaldehyde levels on the workplace which apply in your country. Wear safety goggles during machining.

Storage: The products shall be stored indoors in a normal environment (air at 10 - 30°C / 30 - 70% RH) and kept away from any source of degradation such as sunlight, UV-lamps, chemicals (direct or indirect contact), ionising radiation, flames, etc. Dimensional changes (camber, warpage, shrinkage ...) of the products as well as slight colour shifts of the external surfaces can occur with time. The latter does generally not pose a problem in case of semi-finished products since the surface-layer is mostly removed anyway upon machining them into finished parts.

Safety measures: Standard industrial safety recommendations shall be observed. Temperatures above the melting temperature shall be avoided.

Disposal Considerations

According to the 'European Waste Catalogue and Hazardous Waste list', uncontaminated waste from the products is not classified as hazardous. The following six-digit codes can be used:

07 02 13: Waste plastic from manufacture, formulation, supply and use of plastic

12 01 05: Plastic shavings and turnings

16 01 19: plastic, from end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance

17 02 03: Plastic construction and demolition wastes

20 01 39: plastics from municipal wastes (household waste and similar commercial, industrial and institutional wastes)

Waste disposal: When recycling is not feasible, waste disposal by incineration or landfill can be applied. Disposal methods shall conform to local or other government regulations. The products do not contain cadmium pigments or cadmium stabilisers. They are not biologically degradable, but based on the present state of knowledge no negative effects on the environment may be anticipated.

Safety Properties

Marking and transport information

Classification and labeling: Hazard warning labeling in accordance with relevant EC-Directives is not required.

International transport regulations: Not applicable

Further information

The information is based on our current knowledge. They are meant to describe our products in respect to safety requirements. They do not represent any guarantee of the described product in the sense of the legal guarantee regulations.