



Product information

Product full identity:

Anti-Static Ultra-High Molecular Weight Polyethylene

PE1000 is a food compliant material with high abrasion resistance, very low coefficient of friction and excellent impact strength. PE1000 has good chemical resistance, low moisture absorption and improved lower working temperature range (-260°C to +80°C).

Properties

- » Excellent wear and abrasion resistance
- » High impact strength at low temperature range
- » Excellent machinability
- » Food compliant

Applications

- » Aggregate handling
- » Food processing
- » Pharmaceutical
- » Bottle plants
- » Cryogenic equipment
- » Linings

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	g/cm ³	0.93
2. Water absorption	ISO 62	%	0.05
3. Maximum service temp. Upper temp limit (no stronger mechanical stress involved)	UL 7466	°C	90
Lower temp limit	-	°C	-150
Mechanical Properties	Test	Unit	Result
1. Tensile strength at yield	ISO 527	MPa	20
2. Elongation at yield	ISO 527	%	20
3. Tensile strength at break	ISO 527	MPa	>40
4. Elongation at break	ISO 527	%	>50
5. Impact strength	ISO 179	kJ/m ²	no break
6. Notch impact strength	ISO 179	kJ/m ²	no break
7. Ball indentation / Rockwell hardness	ISO 2039	MPa	38
8. Shore-D	ISO 868	-	67
9. Flexural strength	ISO 178	MPa	27
10. Modulus of elasticity	ISO 527	MPa	760
Thermal Properties	Test Method	Unit	Result
1. Vicat-softening point VST/B/50	ISO 306	°C	80
2. Heat deflection temperature HDT/B	ISO 75	°C	65
HDT/A	ISO 75	°C	42
3. Coefficient of linear thermal expansion	ISO 11359	k ⁻¹ *10 ⁻⁴	2
4. Thermal conductivity at 20 °C	ISO 2200-4	W/(m*K)	0.41
Electrical Properties	Test Method	Unit	Result
1. Volume resistivity	IEC 60093	Ω x m	>10 ¹³
2. Surface resistivity	IEC 60093	W	>10 ¹³
3. Dielectric constant at 1MHz	IEC 60250	-	3
4. Dielectric loss factor at 1 MHz	IEC 60250	-	0.001
5. Dielectric strength	IEC 60243-1	kV/mm	45
6. Tracking resistance	IEC 60112	V	CTI 600
Additional Data	Test Method	Unit	Result
1. Bondability	-	-	-
2. Food compliance	FDA	-	+
3. Flammability	UL 94	-	HB

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	100	+		Hydrofluoric acid	40	+	o
Acetone	100	+	+/o	Hydrogen peroxide	10	+	+
Ammonia	Conc.	+	+	Hydrogen Sulphide		+	
Ammonium chloride		+	+	Isopropyl Alcohol	100	+	+
Amyl Alcohol		+	+	Mercurochrome		+	
Benzene		+	+/o	Methyl alcohol	100	+	+
Bleaching Solution	12,5 Cl			Methyl ethyl ketone	100	+	
Boric Acid	100	+	+	Methylene chloride	100	o/-	-
Brake Fluid		+	+	Nitric acid	10	+	+
Butyl Acetate		+		Nitric acid	50	o	o/-
Calcium Chloride		+	+	Nitrobenzine		+	
Carbon disulphide	100			Oxalic Acid		+	+
Carbon Tetrachloride				Ozone, gas	ca. 0,5 ppm	+/o	-
Chlorine, gas	100			Paraffin Oil	100	+	+
Chlorobenzene	100			Perchlorethylene		o	-
Chloroform				Petroleum	100	+	o
Citric Acid	10	+	+	Petroleum, aromatic free	100		
Cresol		+	+	Phenol, aqu	ca.9	+	+
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	+	+	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	o	-
Heptane	100	-	-	Tetrahydrofuran	100		
Hydrochloric acid	10	+	+	Toluene	100		
Hydrochloric acid	conc.	+	+	Trichlorethylene	100	-	-
				Xylene		-	-

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Key:

Yes	Limited	No data
+	o	-

Safety Properties

Substance / preparation and company detail

Polyethylene
Direct Plastics Limited
Rother Valley Way,
Holbrook,
Sheffield,
S20 3RW
0114 2560889

Composition / indications to components

Chemical characteristics: polymer of ethylene
CAS-number: not necessary

Possible dangers

Unknown

First-aid measures

General comment: medical aid is not necessary
First-aid measures: none
Routes of exposure: none
Symptoms / effects: none

First-fighting measures

Suitable fire-fighting appliance: water fog, foam, fire fighting powder, carbon dioxide
Hazard warning notice: not applicable

Measures in case of unintended release

Person-related measures: none
Environmental protection measures: not applicable
Cleaning equipment: not applicable
Unsuitable cleaning products: not applicable

Handing and storage

Handling: no special regulations must be observed
Storage: unlimited good storage property

Limitation of exposition

Special design of techn. processing facilities: not required
Tolerance levels: none
Exposure measurement procedures: none
Respiratory protection: not required
Eye protection: not required
Body protection: not required

Physical and chemical characteristics

Phenotype

Phenotype / form: semi-finished product, solid state
Colour: natural
Smell: not applicable

Change of state

Crystalline melting range: 130-135 °C
Flash point: not applicable

Other remarks

Density: 0.93 g/cm³

Safety Properties

Stability and reactivity

Thermal decomposition : above appr. 300 °C

Dangerous decomposition products :

Besides carbon black also carbon dioxide and water as well as low molecular parts of PE will develop during the burning process. In case of incomplete burning also carbon monoxide may arise.

Use of stabilisers : none

Exothermic reactions : none

Notices regarding state of aggregation : none

Conditions to be avoided : none

Substances/media to be avoided : none

Toxic information

During several years of usage no effects being harmful for the health were observed.

Ecological information

No biodegradation, no solubility in water, no effects being harmful to the environment must be expected.

Mobility: not applicable

Accumulation: not applicable

Eco-toxicity: not applicable

Waste-disposal information

Can be recycled or can be disposed of together with household rubbish (acc. To local regulations).

Waste key for the unused product: EAK-Code 120 105

Waste name: waste of Polyolefine.

Transport information

No dangerous product in respect to / according to transport regulations

Notice/symbol transport containers: none

Special marking for containers: none

Regulations

Marking according to GefStoffV/EG: no obligation for marking

Water danger class: class 0 (self classification)

Domestic requirements to be observed: none

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.