



## Product information

### Product full identity:

#### High Molecular Weight Polyethylene

PE500 is a versatile, food compliant material available in a wide range of colours. It's unique properties include a low coefficient of friction, high impact strength and abrasion resistance. PE500 has a wide operating temperature of -80°C to +80°C.

### Properties

- » Economical alternative to PE 1000
- » Excellent wear and abrasion resistance
- » Good noise dampening properties
- » Food compliant

### Applications

- » Cutting boards
- » Chutes
- » Liners
- » Food processing
- » Chain parts

### This document contains

- » Technical Datasheet (Page 2)
- » Chemical Datasheet (Page 3)
- » Safety Datasheet (Pages 4-7)

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 <sup>3</sup>	0.96
2. Water absorption till saturation 23°C	-	%	0.01
3. Maximum service temp. Upper temp limit - Short Term (no stronger mechanical stress involved)	-	°C	120
Long Term	-	°C	80
5. Lower temp limit	-	°C	-80
Mechanical Properties	Test	Unit	Result
1. Tensile strength at yield	ISO 527	MPa	>28
2. Elongation at yield	ISO 527	%	8
3. Abrasion (sand slurry test)	ISO 5527	%	>200
4. Elongation	ISO 527	%	7650
5. Impact strength	ISO 179	kJ/m <sup>2</sup>	no break
6. Notch impact strength	ISO 179	kJ/m <sup>2</sup>	725
7. Ball indentation	ISO 2039-1	MPa	50
8. Shore-D	DIN 53505	-	63/65
9. Modulus of elasticity	ISO 527	MPa	1100
Thermal Properties	Test Method	Unit	Result
1. Vicat-softening point	ISO 306	°C	80
2. Coefficient of linear thermal expansion	ISO 11359	%-1	1.5-2 10 <sup>-4</sup>
3. Thermal conductivity	DIN 52612	W/(m*K)	>0.4
Electrical Properties	Test Method	Unit	Result
1. Surface resistivity	IEC 6093	Ω	>10 <sup>14</sup>
2. Dielectric strength	IEC 60243	kV/mm	150
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
+	O	-

## Chemical Properties

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

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### Key:

Yes	Limited	No data
+	o	-

## Safety Properties

### Substance / preparation and company detail

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

### Composition / indications to components

#### Chemical characterization

##### Description:

Polyethylene, high density  
CAS 9002-88-4

**Dangerous components:** Void

**Additional information:** Can contain additives.

### Possible dangers

#### Information pertaining to particular dangers for man and environment

The molten product adheres to the skin and causes burns.

Spilled material may present a slipping hazard.

#### Classification system

This product is, according to EEC directives 1999/45, 67/548, 76/769 and following amendments, not classified as hazardous.

### First-aid measures

#### General information

At room temperature the product is neither an irritant nor gives off hazardous vapours.

The measures listed below apply to critical situations (Fire, incorrect process conditions).

**After inhalation:** In case of excessive inhalation of fumes move the person to fresh air. Call for medical help.

**After skin contact:** After contact with the molten product, cool rapidly with cold water.

Do not pull solidified product away from the skin.

Seek immediate medical advice.

**After eye contact:** Rinse opened eye for several minutes under running water. If irritation persists, seek medical advice.

**After swallowing:** No specific measures have to be taken if the product is swallowed.

### First-fighting measures

Suitable extinguishing agents

Water haze

Foam

Chemical powder

For safety reasons unsuitable extinguishing agents Water jet.

#### Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire it can release :

water (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), and when lacking oxygen (O<sub>2</sub>), carbon monoxide (CO)

The products of the burning are dangerous.

#### Protective equipment:

Use a mask with universal filter.

Use self-contained breathing apparatus within confined rooms.

**Additional information:** Heat value: 12,2 kWh/kg

## Safety Properties

### Measures in case of unintended release

**Person-related safety precautions:**

Particular danger of slipping on leaked/spilled product.

See point 8

**Measures for environmental protection:**

No special measures required.

See points 12 and 13.

**Measures for cleaning/collecting:**

Recycle product or dispose properly.

### Handling and storage

**Handling****Information for safe handling:**

No special requirements necessary, if handled at room temperature.

Avoid spilling the product, as this might cause falls.

When bringing the material to processing temperatures gases might develop, forming:

Ethylene and alkenes of higher molecular weight.

traces of formaldehyde and acrylaldehyde

traces of acids (Formic acid, acetic acid)

Provide appropriate ventilation for such processing conditions.

Take precautionary measures against explosion risks, as all types of polymers may develop dust during transporting or grinding of granules.

Prevent formation of dust.

**Storage****Requirements to be met by storerooms and containers:**

Take precautionary measures to prevent the formation of static electricity.

Ground equipment electrically.

Open flames prohibited.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:**

Protect from heat and direct sunlight.

Store under dry conditions.

Do not stack up the octabins.

Specific applications For safe stacking follow the storage recommendations specific for this product

### Limitation of exposition

**Components with limit values that require monitoring at the workplace:** Not required.

- Additional exposure limit values for possible processing dangers:

107-02-8 acrylaldehyde

WEL () Short-term value: 0.7 mg/m<sup>3</sup>, 0.3 ppm

Long-term value: 0.23 mg/m<sup>3</sup>, 0.1 ppm

50-00-0 formaldehyde

WEL () Short-term value: 2.5 mg/m<sup>3</sup>, 2 ppm

Long-term value: 2.5 mg/m<sup>3</sup>, 2 ppm

64-18-6 formic acid

WEL () Long-term value: 9.6 mg/m<sup>3</sup>, 5 ppm

**Additional information:** Void

**Personal protective equipment**

**General protective and hygienic measures:** Do not eat, drink or smoke while working.

**Breathing equipment:** Use breathing protection in case of insufficient ventilation.

**Protection of hands:** Heat resistant gloves

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Not required.

## Safety Properties

### Physical and chemical characteristics

#### General Information

**Form:** Pellets

**Colour:** Neutral  
various colours

**Odour:** Nearly odourless

**Change in condition**

**Melting point/Melting range:** 50-140°C

**Boiling point/Boiling range:** Not applicable

**Flash point:** Not applicable (see attachment to guideline 92/69/EEC, A.9) Ignition temperature: > 360°C

**Danger of explosion:** Product is not explosive.

**Density at 20°C** 0.9-0.97 g/cm<sup>3</sup>

**Solubility in / Miscibility with water:** Insoluble

**Additional information:** Soluble in boiling, aromatic chlorinated solvents.

### Stability and reactivity

**Thermal decomposition / conditions to be avoided:**

The product is stable when handled and stored under normal conditions.

Decomposes over 360 °C.

**Dangerous reactions:** No dangerous reactions known

**Dangerous products of decomposition:** No hazardous decomposition products known at room temperature.

### Toxic information

**Acute toxicity:**

**Primary irritant effect:**

**On the skin:** No irritant effect.

**On the eye:** No irritant effect.

**Sensitization:** No sensitizing effect known.

**Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

### Ecological information

**Other information:** The product is not biodegradable.

**Behaviour in environmental systems:**

**Mobility and bioaccumulation potential:**

Floats on water.

There is no bioaccumulation.

**General notes:**

The product is not toxic, small particles can have physical effects on water and soil organisms.

### Waste-disposal information

Reuse or recycle if possible.

Disposal through controlled incineration or authorised waste dump.

European waste catalogue 070213

**Unclean packaging:**

**Recommendation:** Disposal must be done according to official regulations.

### Transport information

According to national and international guidelines, which regulate the road, rail, air and sea transport, this product is classified as not dangerous.

## Safety Properties

### Regulations

Not classified

### 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.