



## Product information

### Product full identity:

Polyethylene terephthalate glycol-modified

PETG has excellent optical properties, is extremely easy to fabricate and thermoform. The easy of fabrication combined with the high transparency and impact strength makes PETG the reliable solution for many applications. This material is food compliant. Also available in UV grade.

## Properties

- » 70% better impact resistant than acrylic
- » Good fire properties
- » Good chemical resistance
- » Weather resistant
- » Food compliant

## Applications

- » Indoor and outdoor use
- » Food displays
- » Medical equipment
- » Industrial guarding
- » Shop fitting

## This document contains

- » Technical Datasheet (Page 2)
- » Chemical Datasheet (Page 3)
- » Safety Datasheet (Pages 4-6)

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 <sup>3</sup>                 | 1.27             |
| 2. Water absorption   | ISO 62      | %                                 | 0.2              |
| 3. Maximum service temp. Upper temp limit<br>(no stronger mechanical stress involved) | -           | °C                                | 65               |
| Lower temp limit  | -           | °C                                | -40              |
| Mechanical Properties   | Test        | Unit                              | Result           |
| 1. Tensile strength at yield  | ISO 527     | MPa                               | 53               |
| 2. Elongation at yield  | ISO 527     | %                                 | 4                |
| 3. Tensile strength at break  | ISO 527     | MPa                               | -                |
| 4. Elongation at break  | ISO 527     | %                                 | 40               |
| 5. Impact strength  | ISO 179     | kJ/m <sup>2</sup>                 | no break         |
| 6. Notch impact strength  | ISO 179     | kJ/m <sup>2</sup>                 | 11.5             |
| 7. Ball indentation / Rockwell hardness   | ISO 2039-1  | MPa                               | R115             |
| 8. Shore-D  | DIN 53505   | -                                 | -                |
| 9. Flexural strength  | ISO 178     | MPa                               | 2300             |
| 10. Modulus of elasticity   | ISO 527     | MPa                               | 2200             |
| 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                                | 68               |
| HDT/A   | -           | °C                                | 72               |
| 3. Coefficient of linear thermal expansion  | ISO 11359-2 | k <sup>-1</sup> *10 <sup>-4</sup> | 0.51             |
| 4. Thermal conductivity at 20 °C  | DIN 8302    | W/(m*K)                           | 0.19             |
| Electrical Properties   | Test Method | Unit                              | Result           |
| 1. Volume resistivity   | IEC 60093   | Ω x m                             | 10 <sup>16</sup> |
| 2. Surface resistivity  | IEC 60093   | Ω                                 | 10 <sup>15</sup> |
| 3. Dielectric constant at 1MHz  | IEC 60250   | -                                 | 2.4              |
| 4. Dielectric loss factor at 1 MHz  | IEC 60250   | -                                 | 0.02             |
| 5. Dielectric strength  | IEC 60243   | kV/mm                             | 30               |
| 6. Tracking resistance  | IEC 60112   | -                                 | -                |
| 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 | Temp | Agent                      | Conc %      | Working | Temp |
|------------------------|---------|---------|------|----------------------------|-------------|---------|------|
|                        |         | 20°C    | 60°C |                            |             |         |      |
| Acetic Acid            | 100     | -       |      | 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            |         | 0       |      | Nitric acid                | 10          | +       |      |
| Butyl Acetate          |         |         |      | Nitric acid                | 50          | 0       |      |
| 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        | -       |      |
| Cyclohexanone          | 100     |         |      | Phosphoric Acid            | 50          |         |      |
| Cyclohexene            | 100     |         |      | Potassium hydroxide liquor | 50          |         |      |
| Diesel Fuel            |         | o       |      | 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    |         | o       |      | 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      | conc.   | -       |      | Trichlorethylene           | 100         |         |      |
|                        |         |         |      | Xylene                     |             |         |      |

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### Key:

| Yes | Limited | No data |
|-----|---------|---------|
| +   | o       | -       |

## Safety Properties

### Substance / preparation and company detail

Polyethylene terephthalate Glycol (PETG)  
Direct Plastics Limited  
Rother Valley Way,  
Holbrook,  
Sheffield,  
S20 3RW  
0114 2560889

### Composition / indications to components

Polymer  
Polyethylene terephthalate Glycol (PETG) Copolyester CAS-N° 25640-14-6  
UV-Additives, Colorants

### Possible dangers

No obligation to label in accordance to EU directive 1999/45/EG

### First-aid measures

**On inhalation of decomposition products:** Keep patient calm, remove to fresh air and seek medical help  
**On skin contact:** Areas affected by molten material should be quickly placed under cold running water, do not remove the material and seek immediate medical help.  
**Medical notes:** On inhalation of decomposition products: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

### First-fighting measures

Suitable extinguishing media: water, dry extinguishing media, foam, carbon dioxide  
Special protective equipment: In case of fire, wear a self contained breathing apparatus. Further information: Dispose of fire residues and contaminated extinguishing water in accordance to local regulations.

### Measures in case of unintended release

**Methods for cleaning up:** Sweep/shovel up.

### Handling and storage

#### Handling

Ensure good ventilation and local exhaustion of the working area.  
In case of mechanical operations (drill, saw, mill) the instructions/limited values for handling fine dust are to be observed  
(VDI guideline 3673, 2263) (Germany) MAK-value (mill): 6 mg/m<sup>3</sup>.

#### Storage

In original packing, protected against environmental impacts, keep in a dry place.

### Limitation of exposition

#### Personal protective equipment

In case of usual handling, no special protective equipment will be necessary.  
Under consideration of applied work technique it may be mandatory to use:  
Respiratory protection: dust filter type P1 in case of fine dust creation.  
Skin protection: safety gloves, in case rough edges may cause cuts  
Eye protection: safety glasses or complete face protection

#### General safety and hygiene measures

No general safety and hygiene measures necessary

## Safety Properties

### Physical and chemical characteristics

**Colour:** clear or coloured

**Odour:** odourless

**Change in physical state**

**Softening point:** > 70 °C ISO 306

**Ignition temperature:** > 400 °C ASTM E-659 / DIN 51794

**Fire promoting properties:** None

**Density:** 1,27 g/cm<sup>3</sup> ISO 1183

**Bulk density:** n. a. kg/m<sup>3</sup>

**Solubility in water:** Insoluble

**Solubility in other solvents:** Soluble in organic solvents

### Stability and reactivity

**Start of thermal decomposition:** at 270°C

Thermal decomposition, burning or faulty handling may diffuse noxious gases and vapours.

Thermal decompositions release monomers, carbon dioxide, carbon monoxide, steam.

Avoid thermal decomposition, do not overheat.

**Incompatibility:** material reacts with oxidising agents.

### Toxic information

**Acute toxicity:** no data existing, except those mentioned below:

Water-insoluble

#### Material Tests:

LD-50, oral: (male rat) >3,200 mg/kg (highest dose rate tested)

LD-50, oral: (male mouse) >3,200 mg/kg (highest dose rate tested)

Dermal LD-50: (Guinea pig) >1,000 mg/kg

Skin irritation (guinea pig) Slight irritation

Irritation of eyes (rabbit, unwashed eyes) Slight

Irritation of eyes (rabbit, washed eyes) Slight

Guinea pig None

#### Additional information:

In our experience and according to information available to us the product is not harmful to health provided

### Ecological information

Behaviour and environmental effects

Due to the consistency of the product, and its insolubility in water, it will apparently not be bio-available.

### Waste-disposal information

The product is qualified for material recycling. After suitable treatment the material can again be melted and processed.

The product can be dumped or incinerated in accordance to local regulations.

Disposal code EAK-Code: 120 105 (scraps from mechanical forming, processing)

EAK-Code: 170 203 (scrap-parts, oddments)

### Transport information

Not classified as hazardous under transport regulations.

## Safety Properties

### Regulations

Labelling according to EU Directives

Not subject to labelling

National legislation / regulations

Not classified according to German "Hazardous Substance" regulations (Germany).

Water hazard class: WGK (0) (Germany)

### 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.