



Product Data Sheet 3D Printing

New Businesses

Polyethylene Terephthalate Glycol (PET-G)

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3D printer filament

Product Description

Glycol modified polyethylene terephthalate (PET-G) is a polyester with good toughness and chemical resistance. 3D printed PET-G exhibits good layer adhesion and can be used to produce all kinds of products which include end use parts, prototypes, jigs, and fixtures. Clariant improves the heat stability and resistance to thermal processes using appropriately selected additives such as Hostanox[®] P-EPQ[®] and Hostavin[®] ARO 8.

Benefits

General properties

- Strong and tough engineering thermoplastic
- Transparent
- Good impact strength
- Good chemical resistance

Optimized benefits

- Reduced thermo-oxidative degradation
- Minimized undesired yellowing due to ultraviolet light

Applications*

- Prototypes
- Tools, jigs, fixtures
- Containers / packaging
- Mechanical and technical application parts

*Subject to detailed product specifications.

Printing Parameters

- Print Temperature = 250-260°C
- Print Speed = 20-50 mm/s
- Bed Adhesion = a thin coating of PVP glue on glass or using commercially available adhesion sheets
- Bed Temperature = ideally heated up to 70-75°C (use an enclosed chamber if possible)
- Fan Settings = medium to high

Note: parameters are dependent on printer used; Clariant tests were performed on an Ultimaker 3 extended and an Ultimaker S5.

Typical Property Values

| Property | Typical Values | | | | Units | Test Method | Test Specimen |
|--|----------------|-------|-------------------|---------|-------------------|-----------------------------|------------------|
| | white | black | grey ^a | natural | | | |
| RHEOLOGICAL PROPERTIES | | | | | | | |
| Melt flow rate, 260°C / 5 kg | 34 | 39 | 35 | 35 | g/10 min | ISO 1133 | |
| MECHANICAL PROPERTIES | | | | | | | |
| Tensile stress at yield, 50 mm/min | | | 50 | 48 | MPa | ISO 527 | Injection molded |
| Tensile stress at break, 50 mm/min | 53 | 52 | 50 | 48 | MPa | ISO 527 | Injection molded |
| Tensile elongation at break, 50 mm/min | 18 | 35 | 49 | 59 | % | ISO 527 | Injection molded |
| Flexural modulus | 2300 | 2060 | 2110 | 2120 | MPa | ISO 527 | Injection molded |
| Flexural strength | | | | | MPa | ISO 178 | |
| Izod impact notched | 4 | 4 | 5 | 8 | kJ/m ² | ISO 180 | Injection molded |
| THERMAL PROPERTIES | | | | | | | |
| Melting point | n/a | n/a | n/a | n/a | °C | ISO 11357, DSC ^b | |
| Glass transition temperature | 79 | 80 | 83 | 83 | °C | ISO 11357, DSC ^b | |
| Heat deflection temperature at 1.8 MPa (A) | 65 | 67 | 65 | 65 | °C | ISO 75 | Injection molded |

| | | | | | | | |
|---|------|------|------|------|-------------------|-----------|-----------------------------------|
| Heat deflection temperature at 0.45 MPa (B) | 71 | 72 | 72 | 73 | °C | ISO 75 | Injection molded |
| GENERAL PROPERTIES | | | | | | | |
| Density | 1319 | 1277 | 1286 | 1276 | kg/m ³ | ISO 1183 | |
| Water content | 0.02 | 0.02 | 0.02 | 0.02 | % | ISO 15512 | after drying at 120°C for 2 hours |

^a. Inorganic pigment based color. ^b. DSC = Differential Scanning Calorimetry at 10°C/minute.

Note: results are generated according to the valid testing standards indicated above and the standard operating procedures used by the testing facilities.

Available Colors

Standard Color Range

- Natural
- White
- Black
- Grey

Packaging and Handling

Delivery Form

1.75 mm and 2.85 mm diameter 3D printer filament.

Packaging

1 kg and 5 kg spools of 3D printer filament.
Custom sizes are available upon request.

Storage

Ideally store the 3D printer filament in a cool, dry place at temperatures between 5 to 25°C in a sealed container with the provided Clariant Desi Pak[®] desiccant bag. If the 3D printer filament has been exposed to moisture, please dry at 65°C for 4-6 hours with a vacuum or desiccant drying system if possible. Minimum shelf life is 1 year from the date of shipping when properly stored.

Safety & MSDS

Contact Us;

Please contact us for safety and regulatory details or the Material Safety Data Sheet (MSDS).

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