

## PRECITE® PRELIMINARY

### P3 GF 30 9 FR natural (8053)

PBT GF30 FR(40)

PRECITE® P3 GF 30 9 FR natural (8053) is a 30% glass fiber-reinforced, flame-retardant polybutylene terephthalate (PBT) with a very good combination of strength and ductility and a UL94 V-0 classification from 1.6 mm thickness. The material is based on the latest flame retardant technology and is free from halogenated flame retardant additives, antimony trioxide, PFAS and melamine containing components. It offers excellent heat ageing resistance and is very dimensionally stable due to its low moisture absorption and is particularly suitable for precision parts in the e-mobility or E&E industry.

#### Features

heat stabilised 130   flame retardant   low warpage   E&E   E-Mobility

#### Properties

##### Modulus

10.500 MPa

##### Strength

122 MPa

##### Impact

50 kJ/m<sup>2</sup>

## Mechanical Properties

#### Tensile modulus

ISO 527-2

1 mm/min | d.a.m.

10500 MPa

#### Tensile stress at break

ISO 527-2

5 mm/min | d.a.m.

122 MPa

#### Tensile strain at break

ISO 527-2

5 mm/min | d.a.m.

2,4 %

#### Flexural modulus

ISO 178

2 mm/min | d.a.m.

10500 MPa

#### Flexural strength

ISO 178

2 mm/min | d.a.m.

197 MPa

#### Flexural strain at break

ISO 178

2 mm/min | d.a.m.

2,6 %

#### Charpy impact strength

ISO 179-1/1eU

23°C | d.a.m.

50 kJ/m<sup>2</sup>

-30°C | d.a.m.

59 kJ/m<sup>2</sup>

|                                       |                |                     |
|---------------------------------------|----------------|---------------------|
| <b>Charpy notched impact strength</b> | 23°C   d.a.m.  | 9 kJ/m <sup>2</sup> |
| ISO 179-1/1eA                         | -30°C   d.a.m. | 9 kJ/m <sup>2</sup> |

## Thermal Properties

|                                                   |              |        |
|---------------------------------------------------|--------------|--------|
| <b>Temperature of deflection under load HDT/A</b> | 1,8 MPa      | 205 °C |
| ISO 75                                            |              |        |
| <b>Temperature of deflection under load HDT/B</b> | 0,45 MPa     | 222 °C |
| ISO 75                                            |              |        |
| <b>Melting temperature</b>                        | DSC, 10K/min | 224 °C |
| ISO 11357-3                                       |              |        |

## Flammability

|                                      |                       |           |
|--------------------------------------|-----------------------|-----------|
| <b>Flammability</b>                  | 1,6 mm Wall thickness | V-0 Class |
| UL 94                                |                       |           |
| <b>GWFI</b>                          | 0,8 mm Wall thickness | 960 °C    |
| IEC 60695-2-12                       | 1,6 mm Wall thickness | 960 °C    |
| <b>GWIT</b>                          | 0,8 mm Wall thickness | 750 °C    |
| IEC 60695-2-13                       | 1,6 mm Wall thickness | 750 °C    |
| <b>Burning rate (&lt;100 mm/min)</b> | > 1 mm Thickness      | +         |
| FMVSS 302                            |                       |           |
| <b>Oxygen index</b>                  |                       | > 30 %    |
| ISO 4589-2                           |                       |           |

## General Properties

|                            |                |                        |
|----------------------------|----------------|------------------------|
| <b>Density</b>             | 23°C           | 1,53 g/cm <sup>3</sup> |
| ISO 1183                   |                |                        |
| <b>Humidity absorption</b> | 70°C, 62% r.H. | 0,1 - 0,3 %            |
| ISO 1110                   |                |                        |
| <b>Molding shrinkage</b>   | flow           | 0,2 - 0,4 %            |
| ISO 294-4                  | transverse     | 0,8 - 1,0 %            |

## Electrical Properties

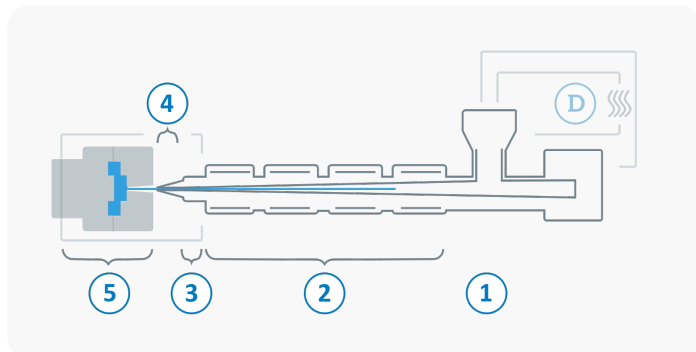
|                                                |               |                 |
|------------------------------------------------|---------------|-----------------|
| <b>Comparative tracking index</b><br>IEC 60112 | Test liquid A | <b>350 V</b>    |
| <b>Dielectric strength</b><br>IEC 60243        | 1 mm          | <b>36 kV/mm</b> |

## Rheological Properties

|                        |              |                                   |
|------------------------|--------------|-----------------------------------|
| <b>MVR</b><br>ISO 1133 | 275°C/2,16kg | <b>25,5 cm<sup>3</sup>/10 min</b> |
|------------------------|--------------|-----------------------------------|

## Processing

The values mentioned are recommendations. We only recommend desiccant / dry air dryers or vacuum dryers. Too long a drying time and the resulting residual moisture content below the lower limit can lead to filling problems and surface defects. The specified drying time refers to closed and undamaged bagged material. When processing from previously opened bags or from octabins with polyolefin inliners, a longer drying time may be necessary. It is recommended to check the residual moisture content after the drying process.



|          |                                                        |                |
|----------|--------------------------------------------------------|----------------|
| <b>D</b> | Drying time                                            | 3 - 4 h        |
|          | Drying temperature ( $\tau \leq -30^{\circ}\text{C}$ ) | 100 - 120 °C   |
|          | Processing moisture                                    | 0,02 - 0,04 %  |
| <b>1</b> | Feed section                                           | 60 - 80 °C     |
| <b>2</b> | Temperature Zone 1 - Zone 4                            | 250 - 275 °C   |
| <b>3</b> | Nozzle temperature                                     | 250 - 280 °C   |
| <b>4</b> | Melt temperature                                       | 260 - 275 °C   |
| <b>5</b> | Mold temperature                                       | 80 - 100 °C    |
| <b>→</b> | Holding pressure, spec.                                | 300 - 800 bar  |
| <b>←</b> | Back pressure, spec.                                   | 30 - 100 bar   |
|          | Injection speed                                        | medium to high |
|          | Screw speed                                            | 8 - 15 m/min   |