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The chemistry inside innovation™

# IMPET® 2700A GV1/30FC (PRELIMINARY)

30% glass-fiber reinforced grade, for use in food contact applications
Developmental grade. Preliminary datasheet.
Polyethylene terephthalate, 30 % glass fiber reinforced, high flowability, excellent gloss, high modulus, for use in food contact applications.

## Rheological properties

| | | | |
|---|---|---|---|
| Viscosity number | 80 | $cm^3/g$ | ISO 307, 1157, 1628 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile Modulus | 11100 | MPa | ISO 527-1/-2 |
| Stress at break, 5mm/min | 174 | MPa | ISO 527-1/-2 |
| Strain at break, 5mm/min | 2.4 | % | ISO 527-1/-2 |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 250 | °C | ISO 11357-1/-3 |

## Other properties

| | | | |
|---|---|---|---|
| Humidity absorption, 2mm | 0.15 | % | Sim. to ISO 62 |
| Water absorption, 2mm | 0.4 | % | Sim. to ISO 62 |
| Density | 1600 | $kg/m^3$ | ISO 1183 |

## Injection

| | | |
|---|---|---|
| Drying Temperature | 120 - 140 | °C |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | 0.01 | % |
| Screw tangential speed | 0.1 - 0.14 | m/s |
| Max. mould temperature | 135 - 145 | °C |
| Injection speed | fast | |

## Characteristics

| | |
|---|---|
| Additives | Release agent |

## Additional information

Injection molding

Melt Temperature 270-290 °C
Mold Temperature 135-145 °C
Maximum Barrel Residence Time *) 5-10 min
Injection Speed fast
Peripheral screw speed max.0,3 m/sec
Back Pressure 10-20 bar
Injection Pressure 600-900 bar
Holding Pressure 300-500 bar
Nozzle Design open design preferred

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Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided.

Ticona recommends only externally heated hot runner systems.

*) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced.

## Processing Texts

| | |
|---|---|
| Pre-drying | IMPET should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< - 30° C. The time between drying and processing should be as short as possible. |
| Longer pre-drying times/storage | For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C. |
| Injection molding | Melt Temperature 270-290 °C<br>Mold Temperature 135-145 °C<br>Maximum Barrel Residence Time *) 5-10 min<br>Injection Speed fast<br>Peripheral screw speed max.0,3 m/sec<br>Back Pressure 10-20 bar<br>Injection Pressure 600-900 bar<br>Holding Pressure 300-500 bar<br>Nozzle Design open design preferred<br><br>Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided.<br><br>Ticona recommends only externally heated hot runner systems.<br><br>*) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced. |
| Injection molding Preprocessing | To avoid hydrolytic degradation during processing, IMPET resins have to be dried to a moisture level equal to or less than 0,01%. The drying should be done in a dry-air dryer (dew point < -30°C) with a temperature of 120 to 140 °C and a drying time of 2 to 4 hours. In case of longer residence times in the dry-air dryer, the temperature should be reduced to 100°C. |

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The time between drying and processing should be kept as short as possible. The processing machine feed hopper should be closed during the processing operation.