

IMPET® 2700 GV1/20FC - PET

Description

Polyethylene terephthalate, 20 % glass fiber reinforced, high flowability, excellent gloss, high modulus, for use in food contact applications.

Physical properties	Value	Unit	Test Standard
Density	1520	kg/m ³	ISO 1183
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.45	%	ISO 62
Humidity absorption, 23°C/50%RH	0.2	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	8200	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	133	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	2	%	ISO 527-2/1A
Flexural modulus, 23°C	8100	MPa	ISO 178
Flexural strength, 23°C	173	MPa	ISO 178
Charpy impact strength, 23°C	20	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	20	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	6.8	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	6.6	kJ/m ²	ISO 179/1eA
Izod impact notched, 23°C	7.2	kJ/m ²	ISO 180/1A
Rockwell hardness (M-Scale)	123	M-Scale	ISO 2039-2
Ball indentation hardness, 30s	235	MPa	ISO 2039-1

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	255	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	80	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	233	°C	ISO 75-1, -2
DTUL at 0.45 MPa	248	°C	ISO 75-1, -2
DTUL at 8.0 MPa	80	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	250	°C	ISO 306
Coeff. of linear therm expansion, parallel	0.23	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	0.95	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	24	%	ISO 4589-1/-2
Flammability @1.6mm nom. thickn.	HB	class	UL 94
thickness tested (1.6)	1.6	mm	UL 94
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	0.80	mm	UL 94

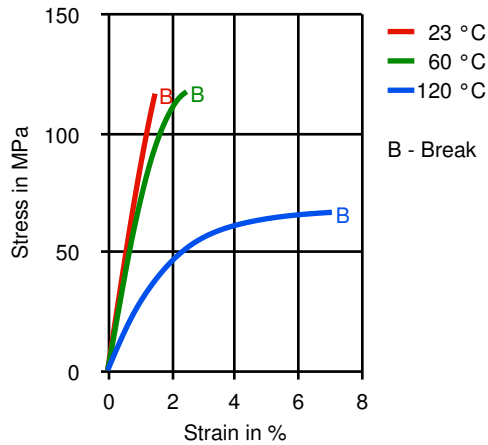
Electrical properties	Value	Unit	Test Standard
Relative permittivity, 100Hz	4.6	-	IEC 60250
Relative permittivity, 1MHz	4.1	-	IEC 60250
Dissipation factor, 100Hz	30	E-4	IEC 60250
Dissipation factor, 1MHz	190	E-4	IEC 60250
Volume resistivity	3E14	Ohm*m	IEC 60093
Surface resistivity	>1E14	Ohm	IEC 60093
Electric strength	31	kV/mm	IEC 60243-1
Comparative tracking index	200	-	IEC 60112
Arc resistance	84	s	Internal



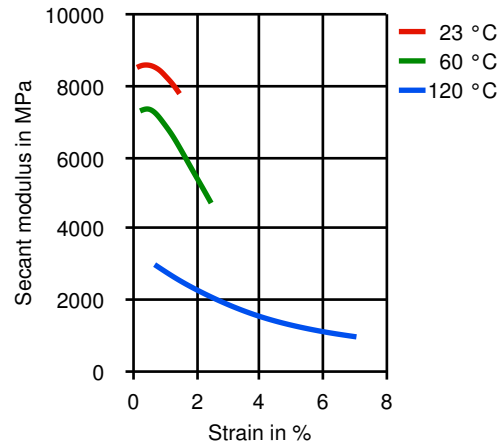
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Diagrams

Stress-strain



Secant modulus-strain



Typical injection moulding processing conditions

	Value	Unit	Test Standard
Pre Drying			
Necessary low maximum residual moisture content	0.01	%	-
Drying time	2 - 4	h	-
Drying temperature	120 - 140	°C	-
Temperature			
Hopper temperature	20 - 50	°C	-
Feeding zone temperature	40 - 60	°C	-
Zone1 temperature	260 - 270	°C	-
Zone2 temperature	270 - 280	°C	-
Zone3 temperature	280 - 290	°C	-
Zone4 temperature	280 - 290	°C	-
Nozzle temperature	270 - 290	°C	-
Melt temperature	270 - 290	°C	-
Mold temperature	135 - 145	°C	-
Hot runner temperature	270 - 290	°C	-
Speed			
Injection speed	fast	-	-
Screw Speed			
Screw speed diameter, 25mm	80	RPM	-
Screw speed diameter, 40mm	65	RPM	-
Screw speed diameter, 55mm	50	RPM	-

Other text information

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 $\leq -30^{\circ}\text{C}$. 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
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



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Injection Pressure 600-900 bar
Holding Pressure 300-500 bar
Nozzle Design open design preferred

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.

Characteristics

Product Categories	Delivery Form
Glass reinforced	Pellets
Processing	Additives
Injection molding	Release agent

