Ticona
Performance Driven Solutions™

IMPET® 2700 GV1/45 (Europe) | PET | Glass Reinforced

Description

Chemical abbreviation according to ISO 1043-1: PET
Moulding compound ISO 7792- PET, MGHR, 08-160, GF45

Polyethylene terephthalate, 45 % glass fibre reinforced, high flowability, excellent gloss, high modulus, very high heat deflection temperature.

Injection mould temperature 135-145 °C.

Physical properties	Value	Unit	Test Standard
Density	**1740**	kg/m³	ISO 1183
Humidity absorption (23°C/50%RH)	**0.15**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	**17000**	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	**185**	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	**1.5**	%	ISO 527-2/1A
Flexural strength (23°C)	**300**	MPa	ISO 178
Charpy impact strength @ 23°C	**44**	kJ/m²	ISO 179/1eU
Charpy impact strength @ -30°C	**44**	kJ/m²	ISO 179/1eU
Charpy notched impact strength @ 23°C	**14**	kJ/m²	ISO 179/1eA
Charpy notched impact strength @ -30°C	**14**	kJ/m²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	**255**	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	**228**	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	**170**	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	**260**	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	**0.15**	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	**20**	%	ISO 4589
Flammability @1.6mm nom. thickn.	**HB**	class	UL94
thickness tested (1.6)	**1.6**	mm	UL94
Flammability at thickness h	**HB**	class	UL94
thickness tested (h)	**0.8**	mm	UL94

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	**5.2**	-	IEC 60250
Relative permittivity - 1 MHz	**4.5**	-	IEC 60250
Dissipation factor - 100 Hz	**30**	E-4	IEC 60250
Dissipation factor - 1 MHz	**165**	E-4	IEC 60250
Volume resistivity	**>1E13**	Ohm*m	IEC 60093
Surface resistivity	**>1E14**	Ohm	IEC 60093
Electric strength	**35**	kV/mm	IEC 60243-1
Comparative tracking index CTI	**250**	-	IEC 60112

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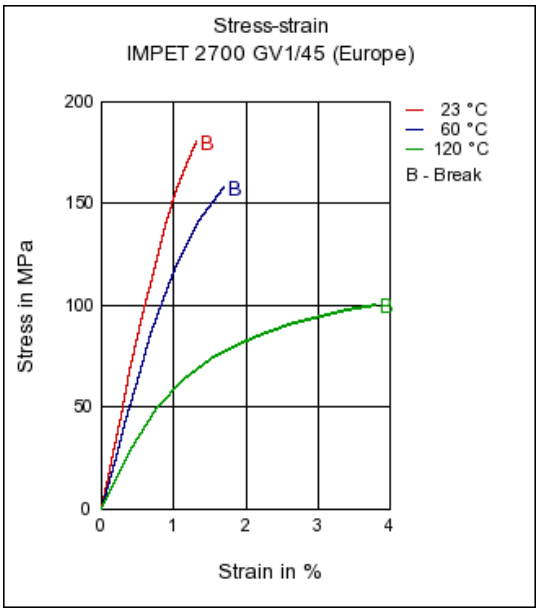
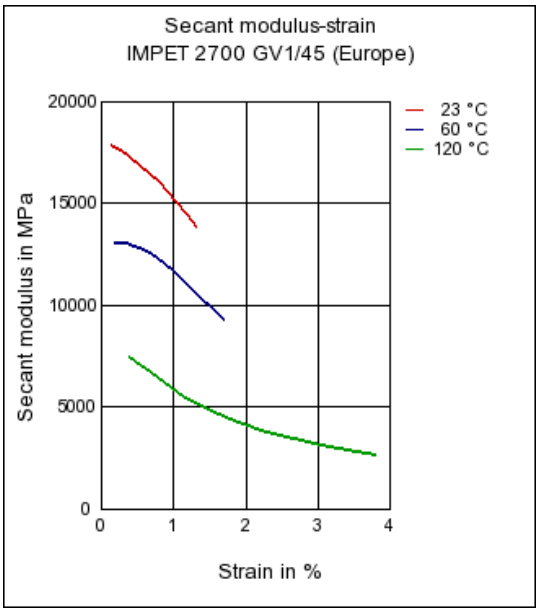
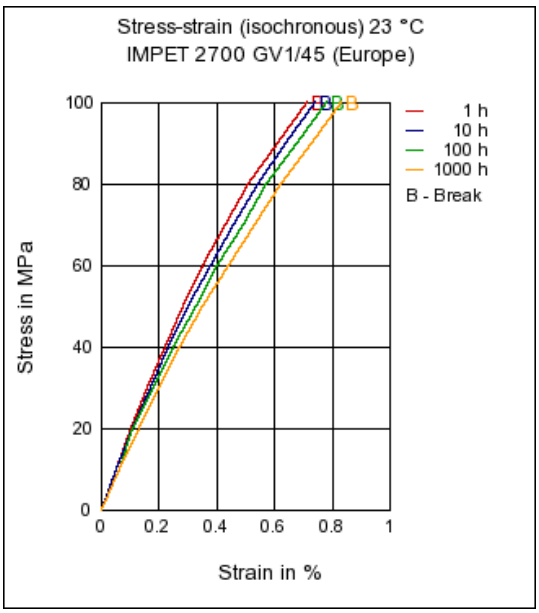
Stress-strain



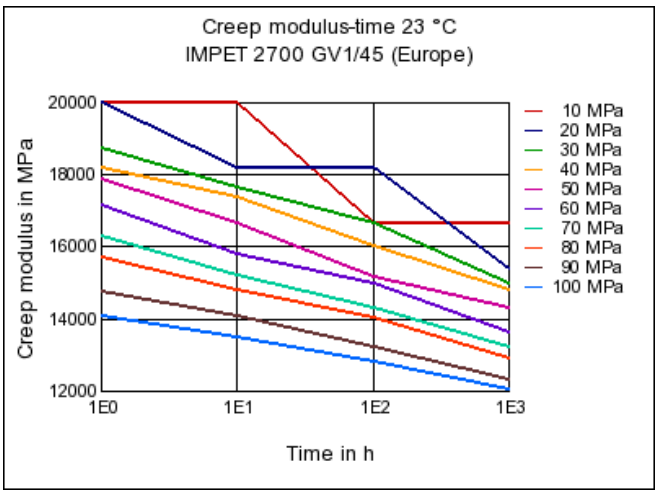
Secant modulus-strain



Stress-strain (isochronous)



Creep modulus-time



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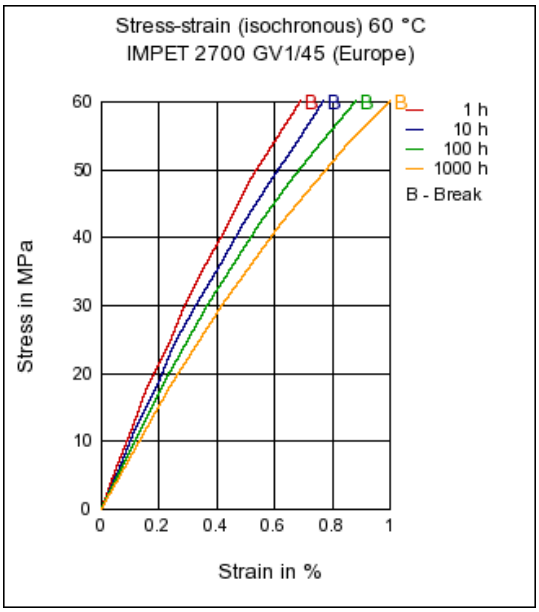
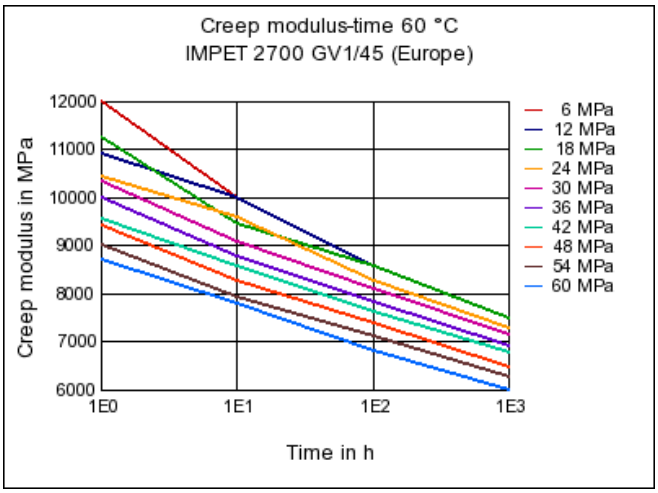


Creep modulus-time



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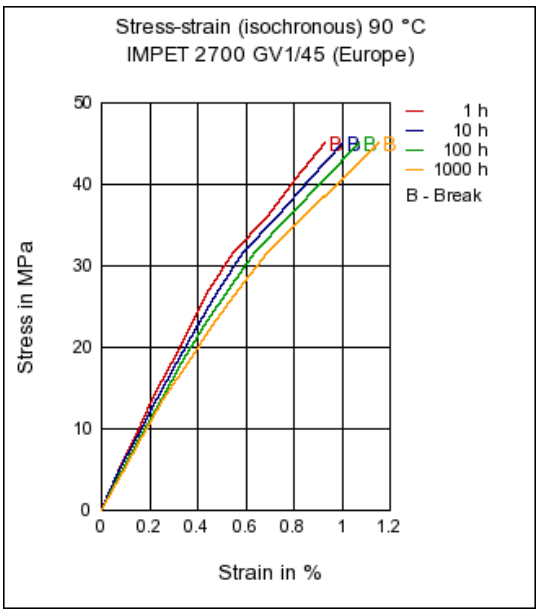

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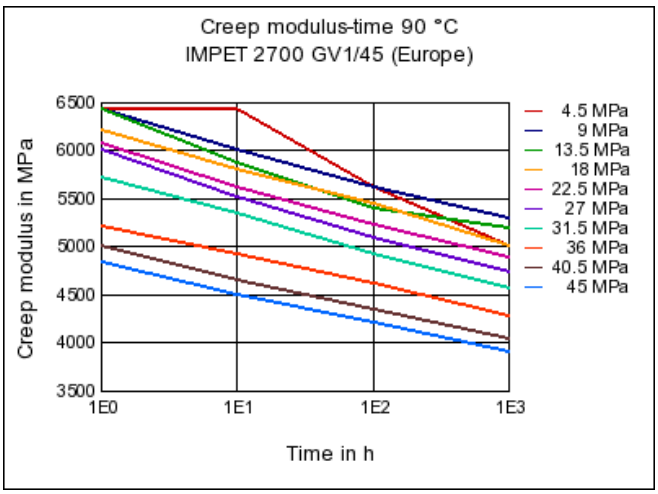

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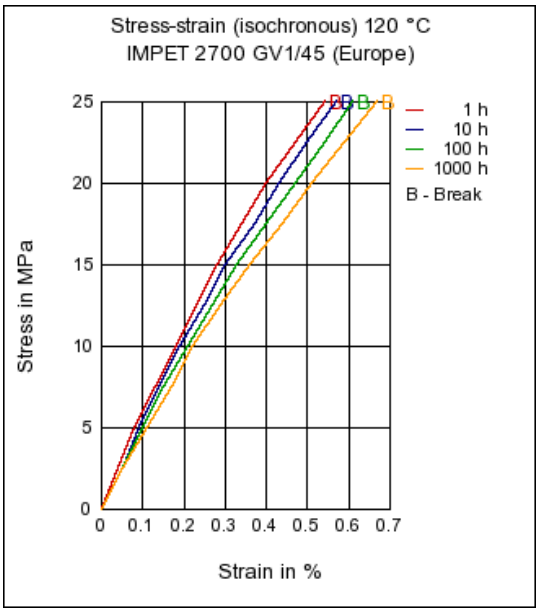

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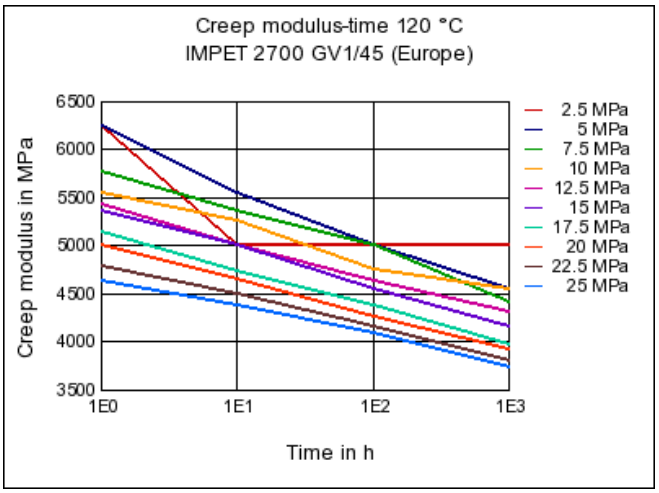
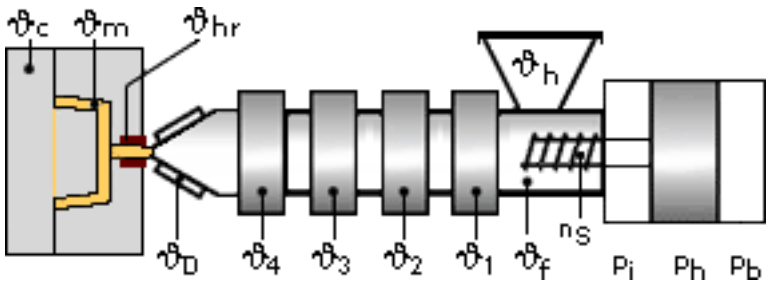


Typical injection moulding processing conditions



Pre Drying:

Necessary low maximum residual moisture content: 0.01%

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.

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.

Drying time: 2 - 4 h

Drying temperature: 120 - 140 °C

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Temperature:

	Manifold	Mold	Melt	Nozzle	Zone4	Zone3	Zone2	Zone1	Feed	Hopper
min (°C)	270	135	270	270	280	280	270	260	40	20
max (°C)	290	145	290	290	290	290	280	270	60	50

Speed:

Injection speed: fast

Screw speed

Screw diameter (mm)	16	25	40	55	75
Screw speed (RPM)	-	80	65	50	-

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	

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.

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General Disclaimer

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Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.
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