

CELANEX® 7716 | PBT | Mineral / Glass Reinforced

Description

Celanex 7716 is a 35% glass/mineral reinforced, non exuding, flame retarded polybutylene terephthalate which has an excellent balance of mechanical properties and processability. Celanex 7716 is well suited for electrical applications where warp resistance or very flat surfaces are required.

Physical properties	Value	Unit	Test Standard
Density	1690	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.25-0.45	%	ISO 294-4
Mold shrinkage - normal	.60-.80	%	ISO 294-4
Humidity absorption (23°C/50%RH)	0.1	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	10800	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	83	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	1.6	%	ISO 527-2/1A
Flexural modulus (23°C)	11700	MPa	ISO 178
Flexural strength (23°C)	140	MPa	ISO 178
Charpy impact strength @ 23°C	22	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	21.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	5	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	5	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	19	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	4.9	kJ/m ²	ISO 180/1A
Notched impact strength (Izod) @ -30°C	4.5	kJ/m ²	ISO 180/1A

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	225	°C	ISO 11357-1,-2,-3
Glass transition temperature (10°C/min)	60	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	194	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	222	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	0.31	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.46	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94
thickness tested (h)	0.9	mm	UL94

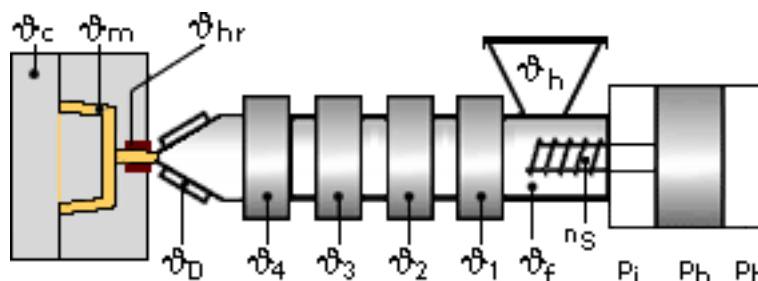
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	4.2	-	IEC 60250
Relative permittivity - 1 MHz	3.9	-	IEC 60250
Dissipation factor - 1 MHz	190	E-4	IEC 60250
Volume resistivity	2E14	Ohm*m	IEC 60093
Surface resistivity	5E16	Ohm	IEC 60093
Electric strength	24	kV/mm	IEC 60243-1
Comparative tracking index CTI	200	-	IEC 60112

Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	7792	-	Internal
Injection molding melt temperature	260	°C	ISO 294
Injection molding mold temperature	82	°C	ISO 294

CELANEX® 7716 | PBT | Mineral / Glass Reinforced

Test specimen production	Value	Unit	Test Standard
Injection molding flow front velocity	300	mm/s	ISO 294
Injection molding hold pressure	48	MPa	ISO 294

Typical injection moulding processing conditions



Pre Drying:

Necessary low maximum residual moisture content: 0.02%

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C) at 250°F (121°C) for 4 hours.

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: 4 h

Drying temperature: 120 - 130 °C

Temperature:

	ϕ Manifold	ϕ Mold	ϕ Melt	ϕ Nozzle	ϕ Zone4	ϕ Zone3	ϕ Zone2	ϕ Zone1	ϕ Feed	ϕ Hopper
min (°C)	250	65	235	240	240	235	235	230	230	20
max (°C)	260	96	255	255	255	250	250	240	240	50

Speed:

Injection speed: medium-fast

Injection Molding

Rear Temperature	450-470(230-240)	deg F (deg C)
Center Temperature	460-480(235-250)	deg F (deg C)
Front Temperature	470-490(240-255)	deg F (deg C)
Nozzle Temperature	480-490(250-255)	deg F (deg C)
Melt Temperature	460-490(235-255)	deg F (deg C)
Mold Temperature	150-200(65-93)	deg F (deg C)
Back Pressure	0-50	psi
Screw Speed	Medium	
Injection Speed	Fast	

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, in particular for flame retardant grades. Up to 50% clean and dry regrind may be used for the 16 series flame retardant grades.

CELANEX® 7716 | PBT | Mineral / Glass Reinforced

Contact Information

Americas

Ticona North American Headquarters
Product Information Service
8040 Dixie Highway
Florence, KY 41042
USA
Tel.: +1-800-833-4882
Tel.: +1-859-372-3244
email: prodinfo@ticona.com
Ticona on the web: www.ticona.com

Customer Service

Tel.: +1-800-526-4960
Tel.: +1-859-372-3214
Fax: +1-859-372-3125

Europe

Ticona GmbH
Information Service
Tel.: +49 (0) 180-5842662 (Germany)
+49 (0) 69-30516299 (Europe)
Fax: +49 (0) 180-2021202 (Germany & Europe)
email: infoservice@ticona.de
Internet: www.ticona.com

General Disclaimer

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colorants or other additives may cause significant variations in data values.

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.

To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication.

Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards.

We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed (+49 (0) 69 30516299 for Europe and +1 859-372-3244 for the Americas) for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

The products mentioned herein are not intended for use in medical or dental implants.

© Copyright 2007, Ticona, all rights reserved. (Pub. 26-September-2013)