



## CELANEX® XFR 6842 GF10

#### **CELANEX® PBT**

Celanex XFR 6842 GF10 is a halogen and antimony free flame retardant (V-0 @ 0.4 mm) 10% glass reinforced PBT grade with good processability and no corrosive emissions during processing. It is suitable for parts requiring enhanced tracking resistance, toughness, and flame retardancy at < 0.75 mm wall thickness. The product is WEEE and RoHS compliant.

#### **Product information**

Resin Identification	PBT-GF9 FR(40+30)	ISO 1043
Part Marking Code	>PBT-GF9 FR(40+30)<	ISO 11469

#### Rheological properties

Melt volume-flow rate	10	cm <sup>3</sup> /10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Moulding shrinkage range, parallel	1.1 - 1.3	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1 - 1.2	%	ISO 294-4, 2577

#### Typical mechanical properties

Tensile modulus	5300	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	70	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.4	%	ISO 527-1/-2
Charpy impact strength, 23°C	30	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	4.2	kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23°C	4.5	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	81		ISO 2039-2
Poisson's ratio	0.35 <sup>[C]</sup>		

### Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	173 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	205 °C	ISO 306
Ball pressure test	200 °C	IEC 60695-10-2

#### Flammability

[C]: Calculated

Burning Behav. at 1.5mm nom. thickn.	V-0 class	IEC 60695-11-10
Thickness tested	1.5 mm	IEC 60695-11-10
UL recognition	yes	UL 94
Burning Behav. at thickness h	V-0 class	IEC 60695-11-10
Thickness tested	0.4 mm	IEC 60695-11-10
UL recognition	yes	UL 94
Burning Behav. 5V at thickness h	5VA class	IEC 60695-11-20
Thickness tested	1.5 mm	IEC 60695-11-20
UL recognition	yes	UL 94
FMVSS Class	SE/NBR	ISO 3795 (FMVSS 302)

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#### Electrical properties

Relative permittivity, 1MHz	2.9	IEC 62631-2-1
Dissipation factor, 1MHz	140 E-4	IEC 62631-2-1
Volume resistivity	3E14 Ohm.m	IEC 62631-3-1
Surface resistivity	3E15 Ohm	IEC 62631-3-2
Electric strength	23 kV/mm	IEC 60243-1
Comparative tracking index	450	IEC 60112

#### Physical/Other properties

Density 1400 kg/m<sup>3</sup> ISO 1183

#### Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°C
Screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C
Ejection temperature	187	°C

#### Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent, Flame retardant, Non-halogenated/Red phosphorous free flame

retardant

Special characteristics Flame retardant, Heat stabilised or stable to heat, Colourable

#### Additional information

Injection molding Preprocessing

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  $^{\circ}$ F (-40  $^{\circ}$ C) at 250-285  $^{\circ}$ F (120-140  $^{\circ}$ C) for 4-6 hours.

#### Processing

Melt Temperature. 250-265 °C Mold Temperature \*): 75-90 °C

Maximum Barrel Residence Time \*\*): 5-10 min

Injection Speed: high

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Peripheral screw speed: max.0,25 m/sec

Back Pressure: 10-30 bar Injection Pressure: 600-1000 bar Holding Pressure: 400-800 bar

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. For grades containing flame retardants, a maximum temperature of 265 °C should not be exceeded.

Celanese recommends only externally heated hot runner systems.

- \*) For moulded parts with especially high requirements to the surface quality or dimensional stability, a mold temperature of up to 100 °C can be advantageous.
- \*\*) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced.

**Processing Notes** 

#### **Pre-Drying**

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 250-285°F (120 - 140°C) for 6 - 4 hours.

#### Storage

For subsequent storage of the material in the dryer until processed (<=60 h) it is necessary to lower the temperature to  $<100^{\circ}$  C.

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