Celanese
The chemistry inside innovation™

CELANEX® XFR 6842 GF30

Halogen-free, nom. 30% glass-fiber reinforced, flame retardant (UL94 V-0 @0.4mm) grade
Celanex XFR 6842 GF30 is a halogen and antimony free flame retardant (V-0 @ 0.4 mm) 26% 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 and it is well suited for electrical connector applications where its UL approved 50% regrind use capability allows maximum use of purchased product. Further, is has an excellent GWIT rating of >=775°C at all thicknesses including a VDE listing at 0.4 and 0.8mm. The product is WEEE and RoHS compliant.

Product information

Part Marking Code	> PBT-GF26 FR(30+40) <	ISO 11469

Rheological properties

Melt volume-flow rate	15	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	5	kg	
Moulding shrinkage range, parallel	0.3 - 0.5	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.8 - 1.0	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	10000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	102	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2	%	ISO 527-1/-2
Flexural Modulus	10500	MPa	ISO 178
Flexural Strength	170	MPa	ISO 178
Charpy impact strength, 23°C	40	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	7.5	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	7.5	kJ/m^2	ISO 180/1A
Hardness, Rockwell, M-scale	83		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	210	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	207	°C	ISO 306
Ball pressure test	222	°C	IEC 60695-10-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0	class	UL 94
Burning Behav. at thickness h	V-0	class	UL 94
Thickness tested	0.4	mm	UL 94
UL recognition	yes		UL 94
Burning Behav. 5V at thickness h	5VA	class	UL 94
Thickness tested	1.5	mm	UL 94
Glow Wire Flammability Index, 0.4mm	850	°C	IEC 60695-2-12

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Glow Wire Flammability Index, 0.75mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	775	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	775	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1mm	800	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	775	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2mm	850	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	850	°C	IEC 60695-2-13
Hot Wire Ignition, 0.75mm	PLC 1	s	UL 746A
Hot Wire Ignition, 1.5mm	PLC 0	s	UL 746A
Hot Wire Ignition, 3mm	PLC 0	s	UL 746A

Electrical properties

Relative permittivity, 1MHz	3.6		IEC 62631-2-1
Dissipation factor, 1MHz	140	E-4	IEC 62631-2-1
Volume resistivity	5E14	Ohm.m	IEC 62631-3-1
Surface resistivity	3.4E16	Ohm	IEC 62631-3-2
Surface resistivity, at high temperature	1.75E14	Ohm	IEC 62631-3-2
Comparative tracking index	PLC 1	PLC	UL 746A
High Amperage Arc Ignition Resistance, 0.75 mm	PLC 1	arcs	UL 746A
High Amperage Arc Ignition Resistance, 1.5 mm	PLC 0	arcs	UL 746A
High Amperage Arc Ignition Category, 1.5 mm	PLC 0	class	UL 746A
High Voltage Arc Tracking Rate	PLC 0	mm/min	UL 746A

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Density	1530	kg/m³	ISO 1183

Injection

Melt Temperature Optimum	265	°C	Internal

Characteristics

Additives	Flame retardant

Additional information

Injection molding	Melt Temperature. 250-265 °C Mold Temperature *): 75-90 °C Maximum Barrel Residence Time **): 5-10 min Injection Speed: high Peripheral screw speed: max.0,25 m/sec Back Pressure: 10-30 bar

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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.

Ticona 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 Texts

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 4 - 6 hours.
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. 250-265 °C Mold Temperature *): 75-90 °C Maximum Barrel Residence Time **): 5-10 min Injection Speed: high 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. Ticona 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.

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