Celanese
The chemistry inside innovation™

CELANEX® 2302 GV1/30LT ED4868 Black - PBT

Description

DEV CX2302 GV1/30LT ED4868 black is 30% glass fiber reinforced, injection molding for industrial parts, low warpage, dimensional stability application.

Physical properties	Value	Unit	Test Standard
Density	**96.8**	lb/ft³	ISO 1183
Melt flow rate, MFR	**21.5**	g/10min	ISO 1133
MFR temperature	**509**	°F	ISO 1133
MFR load	**4.76**	lb	ISO 1133
Melt volume rate, MVR	**16**	cm³/10min	ISO 1133
MVR temperature	**509**	°F	ISO 1133
MVR load	**4.76**	lb	ISO 1133

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**1.48E6**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**21800**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**2.5**	%	ISO 527-1, -2
Flexural modulus, 23°C	**1.48E6**	psi	ISO 178
Flexural strength, 23°C	**32600**	psi	ISO 178
Charpy impact strength, 23°C	**26.2**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**24.3**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**4.76**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**4.76**	ft-lb/in²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature, 20°C/min	**392**	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	**399**	°F	ISO 75-1, -2
DTUL at 0.45 MPa	**431**	°F	ISO 75-1, -2

Electrical properties	Value	Unit	Test Standard
CTI 50 drops	**300**	V	IEC 60112
CTI 100 drops	**275**	V	IEC 60112

Typical injection moulding processing conditions

Pre Drying	Value	Unit
Drying time	**4 - 8**	h
Drying temperature	**248**	°F

Temperature	Value	Unit
Hopper temperature	**122**	°F
Feeding zone temperature	**446 - 482**	°F
Zone1 temperature	**464 - 500**	°F
Zone2 temperature	**473 - 509**	°F
Zone3 temperature	**482 - 518**	°F
Zone4 temperature	**491 - 527**	°F
Nozzle temperature	**491 - 527**	°F
Melt temperature	**491 - 527**	°F
Mold temperature	**185**	°F
Hot runner temperature	**491 - 527**	°F

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Speed	Value
Injection speed	**medium-fast**

Other text information

Pre-drying

CELANEX 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.

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 255-275 °C
Mold Temperature *) 80-100 °C
Maximum Barrel Residence Time **) 5-10 min
Injection Speed medium-fast
Holding Pressure 1000bar
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.

Fast fill rates are recommended to ensure uniform melt delivery to the cavity and prevent premature freezing. Surface appearance is directly affected by injection rate.

Celanese recommends only externally heated hot runner systems.

*) This product can be processed over mold temperatures of 60-100°C (140-212°F); however, for optimizing surface appearance, dimensional stability and part performance, mold surface temperatures of at least 80°C (176°F) are preferred. 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.

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%. The drying should be done in a dry-air dryer (dew point < -30°C) with a temperature of 120 to 140 °C and a drying time of 2 to 4 hours. In case of longer residence times in the dry-air dryer, the temperature should be reduced to 100°C.
The time between drying and processing should be kept as short as possible. The processing machine feed hopper should be closed during the processing operation.

Characteristics

Special Characteristics	Laser transparent, Low warpage
Product Categories	Glass reinforced, Polymer blend
Processing	Injection molding
Delivery Form	Pellets
Additives	Release agent, Antioxidant