

**CELANEX® 2302SW1 GV1/30 - PBT**
**Description**

Chemical abbreviation according to ISO 1043-1: PBT+PET GF30, PTFE-modified grade with 30% glass fiber for injection molded parts with superior gloss and improved slip and wear characteristics. Flammability UL 94 HB minimum thickness 0.8 mm.

Preliminary Data Sheet

Physical properties	Value	Unit	Test Standard
Density	93.6	lb/ft <sup>3</sup>	ISO 1183
Melt volume rate, MVR	10	cm <sup>3</sup> /10min	ISO 1133
MVR temperature	509	°F	ISO 1133
MVR load	4.76	lb	ISO 1133
Humidity absorption, 23°C/50%RH	0.15	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	1.52E6	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	21000	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1, -2

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	491	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	392	°F	ISO 75-1, -2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	0.0315	in	UL 94

**Typical injection moulding processing conditions**

Pre Drying	Value	Unit
Necessary low maximum residual moisture content	0.02	%
Drying time	2 - 4	h
Drying temperature	248 - 284	°F

Temperature	Value	Unit
Hopper temperature	68 - 122	°F
Feeding zone temperature	374 - 392	°F
Zone1 temperature	482 - 500	°F
Zone2 temperature	482 - 500	°F
Zone3 temperature	500 - 518	°F
Zone4 temperature	500 - 518	°F
Nozzle temperature	509 - 527	°F
Melt temperature	509 - 527	°F
Mold temperature	194 - 212	°F
Hot runner temperature	509 - 527	°F

Speed	Value
Injection speed	fast

Screw Speed	Value	Unit
Screw speed diameter, 25mm	90	RPM
Screw speed diameter, 40mm	75	RPM
Screw speed diameter, 55mm	60	RPM

**Other text information**

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**Pre-drying**

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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  $\leq -30^{\circ}\text{C}$ . The time between drying and processing should be as short as possible.

**Longer pre-drying times/storage**

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

**Injection molding**

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Melt Temperature  $265\text{--}275^{\circ}\text{C}$   
Mold Temperature \*)  $90\text{--}100^{\circ}\text{C}$   
Maximum Barrel Residence Time \*\*)  $5\text{--}10\text{ min}$   
Injection Speed fast  
Peripheral screw speed max.  $0,3\text{ m/sec}$   
Back Pressure  $10\text{--}30\text{ bar}$   
Injection Pressure  $600\text{--}1000\text{ bar}$   
Holding Pressure  $400\text{--}800\text{ bar}$   
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.

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  $110^{\circ}\text{C}$  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**

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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  $< -30^{\circ}\text{C}$ ) with a temperature of  $120\text{ to }140^{\circ}\text{C}$  and a drying time of  $2\text{ to }4\text{ hours}$ . In case of longer residence times in the dry-air dryer, the temperature should be reduced to  $100^{\circ}\text{C}$ .

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**

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<b>Special Characteristics</b>	Heat resistant
<b>Product Categories</b>	Glass reinforced, Polymer blend, Tribological
<b>Processing</b>	Injection molding
<b>Delivery Form</b>	Pellets
<b>Additives</b>	Release agent

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