

## LASULF G/20

Compound based on Polysulphone (PSU). Glass fibres. Intrinsically flame retardant. PFAS-free product.

The products mentioned herein are not suitable for applications in contact with foodstuffs or for potable water transportation, or for toy manufacturing.

The products mentioned herein are not suitable for applications in the pharmaceutical, medical or dental sector.

PHYSICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Density</b>	ISO 1183	1.37 g/cm <sup>3</sup>
<b>Linear shrinkage at moulding</b>		
Longitudinal (2.0mm/60MPa)	ISO 294-4	0.30 ÷ 0.55 %
Transversal (2.0mm/60MPa)	ISO 294-4	0.45 ÷ 0.75 %
<b>Dimensional stability</b>	---	68
<b>Moisture absorption</b>		
saturation, in air	ISO 62-4	0.22 %
at saturation, in water	ISO 62-4	0.65 %
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>CHARPY impact strength</b>		
Unnotched, at 23°C	ISO 179-1eU	30.0 kJ/m <sup>2</sup>
Notched, at 23°C	ISO 179-1eA	7.0 kJ/m <sup>2</sup>
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Tensile elongation</b>		
At break (5 mm/min), 23°C	ISO 527	2.3 %
At break (5 mm/min), 60°C	ISO 527	1.9 %
At break (5 mm/min), 90°C	ISO 527	1.9 %
At break (5 mm/min), 120°C	ISO 527	1.8 %
At break (5 mm/min), 150°C	ISO 527	1.9 %
<b>Tensile strength</b>		
At break (5 mm/min), 23°C	ISO 527	105 MPa
At break (5 mm/min), 60°C	ISO 527	90 MPa
At break (5 mm/min), 90°C	ISO 527	80 MPa
At break (5 mm/min), 120°C	ISO 527	75 MPa
At break (5 mm/min), 150°C	ISO 527	60 MPa
<b>Elastic modulus</b>		
Tensile (1 mm/min), 23°C	ISO 527	6800 MPa
Tensile (1 mm/min), 60°C	ISO 527	6500 MPa
Tensile (1 mm/min), 90°C	ISO 527	5900 MPa
Tensile (1 mm/min), 120°C	ISO 527	5500 MPa
Tensile (1 mm/min), 150°C	ISO 527	5300 MPa

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THERMAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Coefficient of linear thermal expansion (CLTE)</b>		
30°C to 100°C (longitudinal)	ISO 11359	25 × 10 <sup>-6</sup> K <sup>-1</sup>
30°C to 100°C (transversal)	ISO 11359	50 × 10 <sup>-6</sup> K <sup>-1</sup>
<b>VICAT - Softening point</b>		
50 N (heating rate 120°C/h)	ISO 306	185 °C
<b>HDT - Heat Deflection Temperature</b>		
0.45 MPa	ISO 75	180 °C
1.81 MPa	ISO 75	180 °C
<b>Thermal conductivity</b>		
in plane	ASTM E 1461-92	0.2 W/(m·K)
through plane	ASTM E 1461-92	0.2 W/(m·K)
<b>FLAMMABILITY</b>		
<b>Oxygen Index</b>		
	ASTM D 2863	32 %
<b>Flammability rating</b>		
3 mm thickness	UL 94	V-0
1.5 mm thickness	UL 94	V-1
<b>GWFI - Glow Wire Flammability Index</b>		
2 mm thickness	IEC 60695-2-12	960 °C
1 mm thickness	IEC 60695-2-12	960 °C
<b>ELECTRICAL PROPERTIES</b>		
<b>CTI - Comparative Tracking Index</b>		
solution A (without surfactant)	IEC 60112	125 V
<b>Electrical resistivity</b>		
surface, dry	ASTM D 257 / ASTM D4496	1E12 ohm
<b>Dielectric strength (short period)</b>		
2 mm thickness, 23°C, dry	ASTM D 149	19 kV/mm

#### STORAGE

Best storage conditions of sealed, undamaged packages are warm environmental temperature in dry storage facilities able to protect from weather and accidental damage.

#### HANDLING AND SAFETY

Detailed information about a safe treatment of the material are indicated in the "Material Safety Data Sheet" (MSDS) furnished with the first material supply. The MSDS may be also sent again in case of loss.

#### PREDRYING CONDITIONS (Hot-air dryer)

Predrying needed. Predrying conditions are: at least 4 hours at 120 ÷ 130°C. Increase time in case of wet material. Maximum suggested moisture content: 0.05%. Use of desiccant dryers or vacuum ovens allows a reduction in drying time.

#### BARREL TEMPERATURE PROFILE

Suggested barrel temperature profile (zone 1 - zone 2 - zone 3 - nozzle): 325-330-340-335°C.

#### RESIDENCE TIME

Maximum allowable residence time: 10 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 1 ÷ 2

#### MELT TEMPERATURE

Suggested range of melt temperature: 310 ÷ 340°C. On small machines, running short cycles, it is possible to use higher melt temperatures to improve plastification, fluidity and surface appearance, paying attention to any indication of material degradation.

#### MOULD TEMPERATURE

Suggested range of mould temperature: 130 ÷ 180°C. This can be significantly different from the tool settings, due to the cooling system efficiency and the accuracy of the temperature control on the tool. If moulding temperature is lower than suggested, part annealing may be necessary.

#### INJECTION SPEED

Advisable injection speed: low to medium. Best results are achieved by using an injection profile.

#### TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): 0.1 ÷ 0.2 m/s. The maximum rotational speed (in rpm) may be calculated by means of the following equation:  $rpm = V/d * 19100$ , where d is the screw diameter (mm).

#### INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: 100 ÷ 150 MPa. Please, check on manual of injection moulding machine the ratio between specific pressure (at nozzle) and hydraulic pressure (of oil).

#### PACKING PRESSURE

Typical suggested packing pressure (at nozzle): 50 ÷ 75% of injection pressure.

#### CUSHION

Minimum suggested cushion: 3 ÷ 6 mm.

#### BACK PRESSURE

Suggested backpressure: 3 ÷ 5 bar (hydraulic pressure).

#### REGRIND USAGE

Maximum suggested regrind percentage: 15%. In-loop regrind is suggested. Regrind must be dried.

#### HOT RUNNER MOULDS

Hot runner moulds can be used when a very tight temperature control is assured.

#### **VALVE GATES / SMALL GATES**

Valve gates or small injection gates can be used.

#### **EQUIPMENT WEAR AND CORROSION**

Usually, critical processing conditions (high injection rate, high back pressure and high screw rotating speed, etc.) and/or disadvantageous geometric conditions (low wall thickness, low diameters, sharp fillet radius, etc.) generate wear on equipment. Wear increases in case of filled materials (particularly fibres filled ones). Appropriate surface treatments of equipment are suggested in these cases, as well as a proper venting to avoid material overheating. Steel types containing a high chrome percentage (Cr > 13%) or a specific surface treatment (e.g. Chrome or Nickel electroplating) are suggested. It is advisable to use a high wear-resistant steel to make the mould.

**Check the proper "Moulding guide" for further details.**

#### **APPROVALS**

**Please, check our site or contact LATI for details.**

#### **CONTACTS**

**LATI Industria Termoplastici S.p.A.**