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LATI® HIGH PERFORMANCE THERMOPLASTICS

LATISHIELD 85-08A G/20

EMI shielding product based on Polyether Sulphone (PES).
Steel fibres. Glass fibres.

PHYSICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Density	ISO 1183	1.59	g/cm³
Linear shrinkage at moulding			
Longitudinal (2.0mm/60MPa)	ISO 294-4	0.35 ÷ 0.50	%
Transversal (2.0mm/60MPa)	ISO 294-4	0.75 ÷ 0.90	%
Dimensional stability	---	78	

MECHANICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
CHARPY impact strength			
Unnotched, at +23°C	ISO 179-1eU	45.0	kJ/m²
Notched, at +23°C	ISO 179-1eA	5.5	kJ/m²
Tensile elongation			
At break (5 mm/min), 23°C	ISO 527 (1)	2.0	%
Tensile strength			
At break (5 mm/min), 23°C	ISO 527 (1)	110	MPa
Elastic modulus			
Tensile (speed 1 mm/min), at 23°C	ISO 527 (1)	7000	MPa

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THERMAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
VICAT - Softening point			
49 N (heating rate 50°C/h)	ISO 306	210	°C
HDT - Heat Deflection Temperature			
0.45 MN/m²	ISO 75	215	°C
1.81 MN/m²	ISO 75	205	°C

FLAMMABILITY	STANDARD	VALUE	MEASURE UNITS
Flammability rating			
3.00 mm thickness	UL 94	V-0	
1.50 mm thickness	UL 94	V-0	
0.75 mm thickness	UL 94	V-0	

ELECTRICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Electrical resistivity			
Surface	ASTM D 257	1E1	ohm
Electromagnetic reflection			
(Bekiscan - CP)	---	90	%

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MATERIAL - STORAGE

Sealed, undamaged packages has to be kept in dry storage facilities, providing they are also able to protect them 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 — Predrying not necessary

The product is supplied with a low moisture content and usually drying is not required. However, a long shelf life is not suggested, in order to avoid moisture absorption during storage, because the drying procedure could cause a partial melting of the steel fibres coating. If drying is necessary, conditions are: 3 ÷ 5 hrs at 110 ÷ 130°C.

ACTUAL MELT TEMPERATURE — 300 ÷ 340°C

The injection moulding machine settings needed to obtain the suggested melt temperature will depend greatly on shot size and machine capacity, as well as other moulding parameters such as: injection speed, screw RPM, back pressure, etc. 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 — 100 ÷ 130°C

The mould temperature suggested above is the actual tool steel temperature. 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. The best results can be obtained keeping the tool temperature in the upper range.

INJECTION SPEED — Medium to high

The advisable injection speed greatly depends on cavity geometry and injection moulding machine size. The use of high injection speed should be avoided as it can cause excessive shear stress on the steel fibres, reducing their EMI shielding effectiveness.

REGRIND USAGE

The use of regrind is possible, but should be assessed on the basis of the project, moulding parameters, and type of grinding used. The effect of using regrind on material properties must be evaluated by the customer on its specific project and process, especially when high shielding is required. High percentages of regrind may cause a reduction in viscosity and fibre length, reducing mechanical properties and EMI shielding effectiveness. The use of regrind shall be avoided when the shielding requirements for the application are close to the maximum attainable with the product.

HOT RUNNER MOULDS AND SUB GATES

Hot runner moulds and/or small injection gates are not recommended and their use should be evaluated with the support of LATI technical service. To avoid the risk of clogging small pin and submarine gates, as well as hot drops, it is necessary to start every moulding session by moulding a few parts with a standard, glass reinforced, . LATISHIELD must be added to the standard material in the hopper without purging the barrel and keeping high back pressure until a few parts are moulded showing good dispersion of the steel fibres. The specific procedure should be set up with the help of LATI technical service. It must be noted that pin and submarine gates cause high shear stress and can negatively affect the shielding properties of the material..

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MATERIAL HANDLING

Pneumatic conveyor systems shall be avoided to prevent the separation of the steel bundles from the base resin.

TO AVOID

Shut-off nozzles and internally heated hot runners have to be avoided. In order to prevent any material degradation, over-dimensioned machines should be avoided.

EQUIPMENT WEAR

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 fibre filled ones). Appropriate equipment surface treatments are suggested in these cases, as well as a proper venting to avoid material overheating.

NOTES

The products mentioned herein are not suitable for applications in contact with foodstuff 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.

CONTACTS

LATI Industria Termoplastici S.p.A.