Product Data Sheet
Luminy® FOAM 50F

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LUMINY® FOAM 50F

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DESCRIPTION

PLA is a biobased polymer derived from natural resources and offers a significant reduction in carbon footprint compared to oil-based plastics. Luminy® FOAM 50F is a modified, high melt strength, PLA polymer suitable for processing techniques that require a PLA material with a higher melt strength, like extrusion foaming, extrusion blow molding, film blowing, etc.

TYPICAL PROPERTIES[1]

Physical properties	Method	Typical value
Density	Literature value	1.24 g/cm3
Melt flow index	ISO 1133-A (190°C/10kg)	5 g/10 min
Stereochemical purity	TotalEnergies Corbion method	98% (L-isomer)
Appearance	Visual	Crystalline white pellets
Residual monomer	TotalEnergies Corbion method	≤ 0.3%
Water / moisture	Coulometric Karl-Fischer	≤ 400ppm
Melting temperature	DSC	165°C
Glass transition temperature	DSC	60°C
Mechanical properties	**Method**	**Typical value**
Tensile modulus	ISO 527-1	3500 MPa
Tensile strength	ISO 527-1	50 MPa
Elongation at break	ISO 527-1	≤ 5%
Charpy notched impact, 23°C	ISO 179-1eA	≤ 5 kJ/m2
Heat deflection temp., amorphous[2]	ISO 75-1	60°C

[1] Typical properties, not to be interpreted as specifications
[2] HDT B, 0.45MPa flatwise. HDT depends on processing conditions.

PROCESSING INFORMATION & RECOMMENDATIONS

Luminy® FOAM 50F can only be processed on processing equipment that accepts a higher torque. For continuous production, it is advised to use starve feeding to prevent too high shear of the non-molten pellets in the feed zone. Flood feeding can cause crunching of the pellets and may produce a high pitched sound.
Drying of the resin to moisture levels below 250ppm, preferably below 100ppm, is crucial to prevent hydrolyses of the material during processing. Hydrolyses of the material, as well as high shear processing will cause degradation of the material and a reduction of the melt strength and final product properties

Processing (start-up) recommendations	
Drying	4-6 hours at 100°C
Throat (Starve feeding)	20-40°C
Feed zone	180-200°C
Compression zone	180-220°C
Metering zone	180-220°C
Die	180-220°C
Tmelt	180-220°C

Typical settings, may require optimization

Start-up and shutdown

1. The equipment needs to be well cleaned and purged to prevent cross contamination.
2. At the start of the run it is recommended to purge the system with a polyolefin or a purging compound (e.g., Dyna-Purge, Clean LDPE) followed by purging with a low MFI Luminy® PLA polymer or Luminy® FOAM 50F at its processing conditions.
3. At the completion of the run it is recommended to purge the system using a purging compound again.

After completion of the run, PLA must be removed from the whole system. PLA can degrade into lactic acid causing corrosion of the equipment (e.g., die plates).

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PLA bioplastics

MOISTURE AND PRE-DRYING

It is crucial to dry Luminy® FOAM 50F for at least 4-6 hours at 100°C. Drying of semicrystalline Luminy® FOAM 50F can be performed in a desiccant hot air dryer, with a dew point of -40°C or less. It is highly recommended to reduce the moisture content before melt processing to a level less than 250ppm and preferably less than 100 ppm, measured by e.g., Karl-Fischer or Brabender Aquatrac method.

Moisture causes hydrolysis of the PLA polymer during melt processing, resulting in reduced melt strength and mechanical performance of the final part.