

GUR® 2122 M ECO-B

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UHMW-PE powder grade: special particle morphology

GUR® 2122 M ECO-B incorporates >99% of bio-circular ethylene by weight in the finished product through mass balance allocation. The product is a drop-in replacement to the standard grade with the same performance and processing properties and contributes to the displacement of virgin fossil fuel resources. The biobased source and allocated content in the product are certified according to ISCC PLUS mass balance approach.

Product information

Resin Identification	(PE-UHMW)	ISO 1043
Part Marking Code	>(PE-UHMW)<	ISO 11469
Average molecular weight	4.2E6 g/mol	Margolies' equation
Average particle size, d50	130 µm	laser scattering

Rheological properties

Viscosity number	2100 cm ³ /g	ISO 307, 1628
Intrinsic viscosity	1900	ISO 307, 1628

Typical mechanical properties

Tensile modulus	770 MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	21 MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	13 %	ISO 527-1/-2
Tensile stress at 50% strain	20 MPa	ISO 527-1/-2
Tensile stress at break, 50mm/min	39 MPa	ISO 527-1/-2
Nominal strain at break	400 %	ISO 527-1/-2
Elongational stress F, 150/10	0.21 MPa	ISO 21304-2
Charpy double notched impact strength, 23°C	170 kJ/m ²	ISO 21304-2
Poisson's ratio	0.46 ^[C]	
Shore D hardness, 15s	60	ISO 48-4 / ISO 868

[C]: Calculated

Tribological properties

Wear by sandslurry method (based on GUR 4120=100)	100
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Thermal properties

Temperature of deflection under load, 1.8 MPa	41 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	80 °C	ISO 306

Electrical properties

Volume resistivity	1E12 Ohm.m	IEC 62631-3-1
Surface resistivity	1E12 Ohm	IEC 62631-3-2

Physical/Other properties

Density	930 kg/m ³	ISO 1183
Bulk density	250 kg/m ³	ISO 60

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Characteristics

Processing	Other Extrusion, Porous Sintering
Delivery form	Powder
Special characteristics	High impact or impact modified, Hydrolysis resistant, Low wear / Low friction, Chemical resistant
Sustainability	Bio-Content

Additional information

Other extrusion

Preprocessing

Drying of the material is not required due to a negligible moisture content of <0.01 %. However, it is recommended that material with condensed water accumulation be pre-dried at approx. 80-100 °C in a recirculation air drying oven for 2-4 hours. Max. water content 0.1 %

Processing

All ram extruders can be used to produce semi-forms such as rod, tube, board, sheet or profiles.

Temperature Profile: 180-230 °C

Postprocessing

Conditioning is not necessary.