Celanese
The chemistry inside innovation™

GUR® 4022 ECO-B

GUR®

UHMW-PE powder grade

GUR® 4022 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	5E6	g/mol	Margolies' equation
Average particle size, d50	155	µm	laser scattering

Rheological properties

Viscosity number	2400	cm^3/g	ISO 307, 1628
Intrinsic viscosity	2100		ISO 307, 1628

Typical mechanical properties

Tensile modulus	800	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	21	MPa	ISO 527-1/-2
Tensile stress at break, 50mm/min	44	MPa	ISO 527-1/-2
Nominal strain at break	410	%	ISO 527-1/-2
Elongational stress F, 150/10	0.27	MPa	ISO 21304-2
Charpy double notched impact strength, 23°C	160	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		

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	460	kg/m^3	ISO 60

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Characteristics

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