

GUR® 4152 | PE-UHMW | Unfilled

Description

GUR 4152 UHMW-PE is a linear polyolefin resin in powder form with a molecular weight of approximately 7.5 MM g/mol calculated using Margolies equation. The extremely high molecular weight of this resin yields several unique properties including superior abrasion resistance and impact strength. This and GUR 4150 resins have the best abrasion resistance of all standard grades. Outstanding properties include a low coefficient of friction that results in self-lubricating, non-stick surfaces after processing. The resin is normally processed by compression molding or ram extrusion.

Physical properties	Value	Unit	Test Standard
Density	930	kg/m ³	ISO 1183
Mass melt-flow rate (MFR) 190°C/21.6 kg		g/10 min	ISO 1133
Humidity absorption (23°C/50%RH)		%	ISO 62
Elongational Stress F (150/10)	0.39	MPa	ISO 11542-2
Intrinsic viscosity	2800	ml/g	ISO 1628-3
Viscosity number	3300	cm ³ /g	ISO 307, 1157, 1628

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	780	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	21	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	13	%	ISO 527-2/1A
Nominal strain at break (50mm/min)	300	%	ISO 527-2/1A
Tensile stress at break (50mm/min)	36	MPa	ISO 527-2/1A
Tensile creep modulus (1h)	430	MPa	ISO 899-1
Tensile creep modulus (1000h)	220	MPa	ISO 899-1
Charpy impact strength @ 23°C	NB	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	NB	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	NB	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	NB	kJ/m ²	ISO 179/1eA
Charpy impact strength (14° V-notch both sides)	120	kJ/m ²	ISO 11542-2
Shore hardness D scale 15 sec value	60	-	ISO 868
Ball indentation hardness 30 sec value	40	N/mm ²	ISO 2039-1
Wear by sandslurry method (based on GUR 4120=100)	95	-	Internal

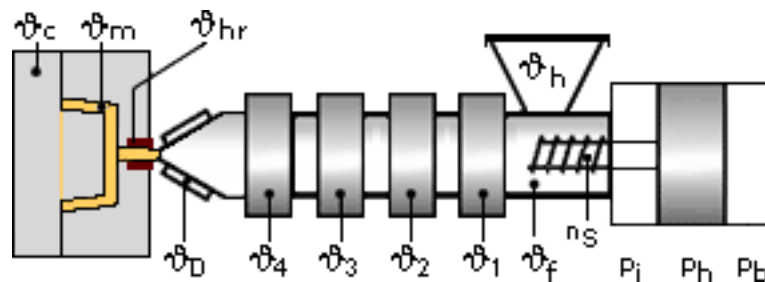
Thermal properties	Value	Unit	Test Standard
DTUL @ 1.8 MPa	41	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	65	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	80	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	2	E-4/°C	ISO 11359-2
Flammability @1.6mm nom. thickn.	HB	class	UL94
thickness tested (1.6)	1.6	mm	UL94
Thermal conductivity at 23°C	0.41	W/(m K)	Internal
Specific heat at 23°C	1.84	kJ/(kg-°K)	Internal

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	2	-	IEC 60250
Relative permittivity - 1 MHz	2	-	IEC 60250
Dissipation factor - 100 Hz	4	E-4	IEC 60250
Dissipation factor - 1 MHz	10	E-4	IEC 60250
Volume resistivity	>1E12	Ohm*m	IEC 60093
Surface resistivity	>1E12	Ohm	IEC 60093

GUR® 4152 | PE-UHMW | Unfilled

Electrical properties	Value	Unit	Test Standard
Electric strength	45	kV/mm	IEC 60243-1
Comparative tracking index CTI	600	-	IEC 60112
Processing properties	Value	Unit	Test Standard
Powder	Yes	-	ASTM D638
Test specimen production	Value	Unit	Test Standard
Comp. molding mold temperature	210	°C	ISO 293
Comp. molding cooling rate	15	K/min	ISO 293

Typical injection moulding processing conditions



Special Info:

Not for Injection Molding. For Ram Extrusion and Compression Molding only. See Ticona for processing.

Compression Molding

This polymer is normally processed by Compression Molding or RAM extruding.