

## GUR® 4152 | PE-UHMW | Unfilled

### Description

GUR 4152 UHMW-PE is a linear polyolefin resin in powder form with a molecular weight of approximately 7.7 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	<b>930</b>	kg/m <sup>3</sup>	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)	<b>0.41</b>	MPa	ISO 11542-2
Intrinsic viscosity	<b>2800</b>	ml/g	ISO 1628-3
Viscosity number	<b>3400</b>	cm <sup>3</sup> /g	ISO 307, 1157, 1628

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	<b>680</b>	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	<b>17</b>	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	<b>20</b>	%	ISO 527-2/1A
Nominal strain at break (50mm/min)	<b>300</b>	%	ISO 527-2/1A
Tensile stress at break (50mm/min)	<b>35</b>	MPa	ISO 527-2/1A
Tensile creep modulus (1h)	<b>430</b>	MPa	ISO 899-1
Tensile creep modulus (1000h)	<b>220</b>	MPa	ISO 899-1
Charpy impact strength (14° V-notch both sides)	<b>130</b>	kJ/m <sup>2</sup>	ISO 11542-2
Shore hardness D scale 15 sec value	<b>61</b>	-	ISO 868
Ball indentation hardness 30 sec value	<b>35</b>	N/mm <sup>2</sup>	ISO 2039-1
Wear by sandslurry method (based on GUR 4120=100)	<b>80</b>	-	Internal

Thermal properties	Value	Unit	Test Standard
DTUL @ 1.8 MPa	<b>42</b>	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	<b>65</b>	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	<b>80</b>	°C	ISO 306
Coeff. of linear therm. expansion (parallel)	<b>2</b>	E-4/°C	ISO 11359-2
Flammability @1.6mm nom. thickn.	<b>HB</b>	class	UL94
thickness tested (1.6)	<b>1.6</b>	mm	UL94
Thermal conductivity at 23°C	<b>0.41</b>	W/(m K)	Internal
Specific heat at 23°C	<b>1.84</b>	kJ/(kg-°K)	Internal

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	<b>2.1</b>	-	IEC 60250
Relative permittivity - 1 MHz	<b>3</b>	-	IEC 60250
Dissipation factor - 100 Hz	<b>4</b>	E-4	IEC 60250
Dissipation factor - 1 MHz	<b>10</b>	E-4	IEC 60250
Volume resistivity	<b>&gt;1E12</b>	Ohm*m	IEC 60093
Surface resistivity	<b>&gt;1E12</b>	Ohm	IEC 60093
Electric strength	<b>45</b>	kV/mm	IEC 60243-1
Comparative tracking index CTI	<b>600</b>	-	IEC 60112

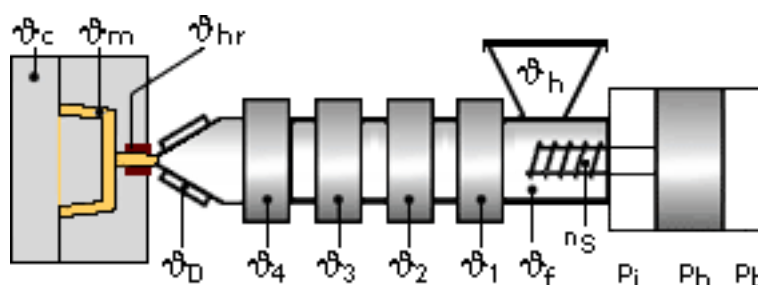
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Processing properties	Value	Unit	Test Standard
Powder	Yes	-	ASTM D638

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.

### Contact Information

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Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.

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