

GUR® 4120 | PE-UHMW | Unfilled

Description

GUR 4120 UHMW-PE is a linear polyolefin resin in powder form with a molecular weight of approximately 5.0 MM g.mol calculated using Margolies equation. The extremely high molecular weight of this resin yields several unique properties including superior abrasion resistance and highest impact strength 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, ram extrusion or free sintering of porous parts.

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
Water absorption (23°C-sat)		%	ISO 62
Humidity absorption (23°C/50%RH)		%	ISO 62
Elongational Stress F (150/10)	0.22	MPa	ISO 11542-2
Intrinsic viscosity	2100	ml/g	ISO 1628-3
Viscosity number	2400	cm ³ /g	ISO 307, 1157, 1628

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	720	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	17	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	20	%	ISO 527-2/1A
Nominal strain at break (50mm/min)	>50	%	ISO 527-2/1A
Tensile creep modulus (1h)	460	MPa	ISO 899-1
Tensile creep modulus (1000h)	230	MPa	ISO 899-1
Charpy impact strength (14° V-notch both sides)	210	kJ/m ²	ISO 11542-2
Shore hardness D scale 15 sec value	60	-	ISO 868
Ball indentation hardness 30 sec value	36	N/mm ²	ISO 2039-1
Wear by sandslurry method (based on GUR 4120=100)	100	-	Internal

Thermal properties	Value	Unit	Test Standard
DTUL @ 1.8 MPa	42	°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

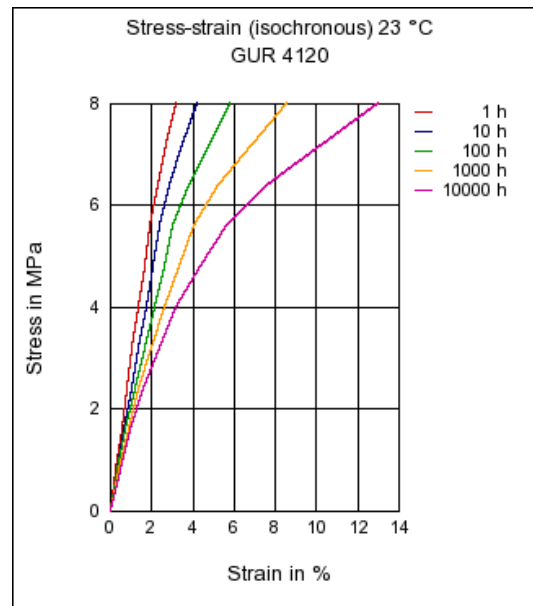
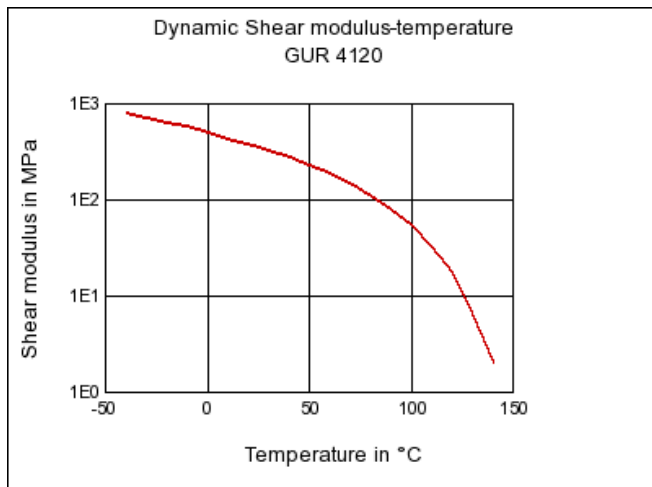
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	2.1	-	IEC 60250
Relative permittivity - 1 MHz	3	-	IEC 60250
Dissipation factor - 100 Hz	3.9	E-4	IEC 60250
Dissipation factor - 1 MHz	10	E-4	IEC 60250
Volume resistivity	>1E12	Ohm*m	IEC 60093
Surface resistivity	>1E12	Ohm	IEC 60093
Electric strength	45	kV/mm	IEC 60243-1
Comparative tracking index CTI	600	-	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

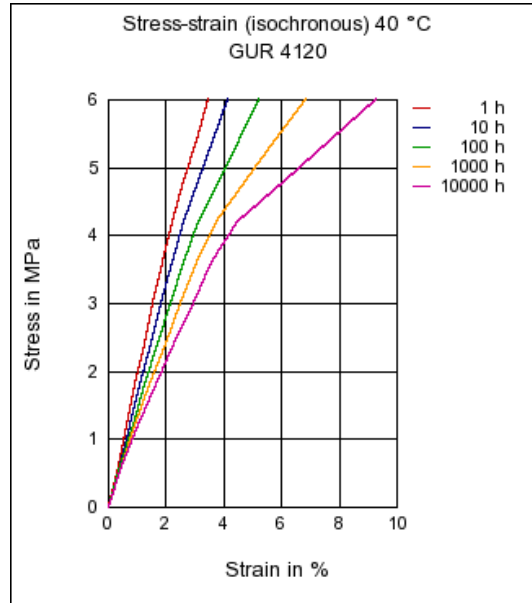
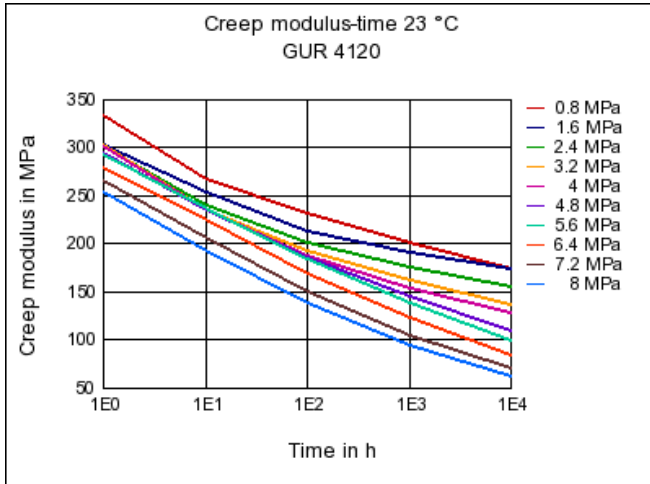
Dynamic Shear modulus-temperature **Stress-strain (isochronous)**



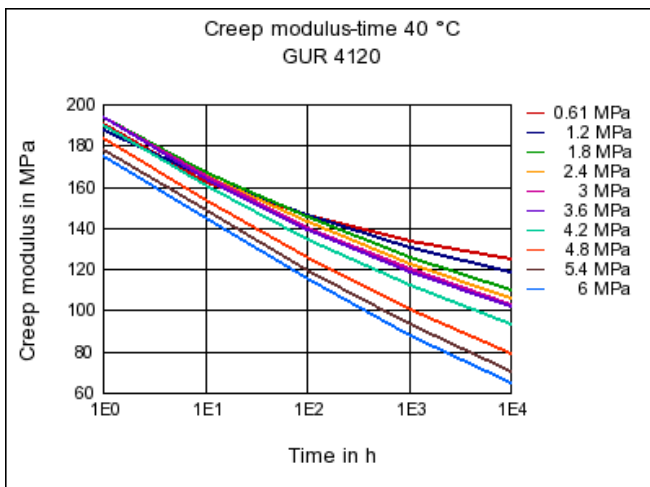
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Creep modulus-time

Stress-strain (isochronous)

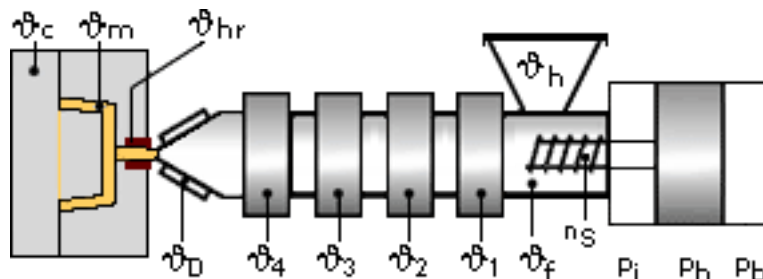


Creep modulus-time



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Typical injection moulding processing conditions



Special Info:

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

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General Disclaimer

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colorants or other additives may cause significant variations in data values.

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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The products mentioned herein are not intended for use in medical or dental implants.

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