

**Grilamid L 20 G**

PA12

EMS-GRIVORY | a unit of EMS-CHEMIE AG

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	<b>1600 / 1100</b>	MPa	ISO 527-1/-2
Charpy impact strength (+23°C)	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	<b>5 / 7</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	<b>6 / 6</b>	kJ/m <sup>2</sup>	ISO 179/1eA

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (10°C/min)	<b>178 / -</b>	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	<b>45 / -</b>	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	<b>115 / -</b>	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	<b>120 / -</b>	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	<b>140 / -</b>	E-6/K	ISO 11359-1/-2
Burning Behav. at thickness h	<b>HB / -</b>	class	IEC 60695-11-10
Thickness tested	<b>0.8 / -</b>	mm	IEC 60695-11-10

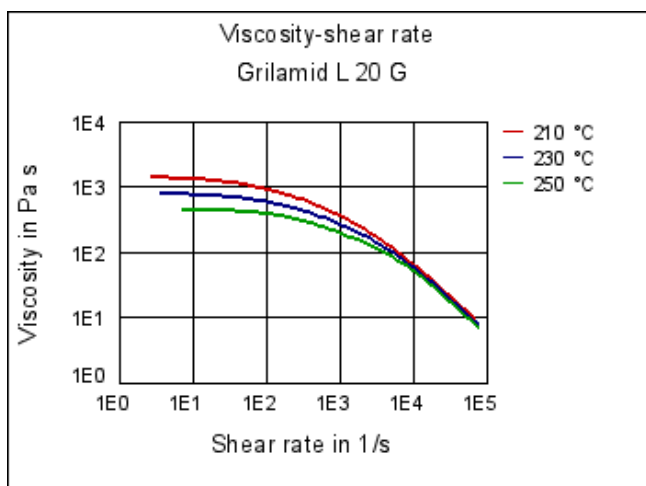
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	<b>- / 1E11</b>	Ohm*m	IEC 60093
Surface resistivity	<b>- / 1E12</b>	Ohm	IEC 60093
Electric strength	<b>- / 32</b>	kV/mm	IEC 60243-1
Comparative tracking index	<b>- / 600</b>	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	<b>1.5 / -</b>	%	Sim. to ISO 62
Humidity absorption	<b>0.7 / -</b>	%	Sim. to ISO 62
Density	<b>1010 / -</b>	kg/m <sup>3</sup>	ISO 1183

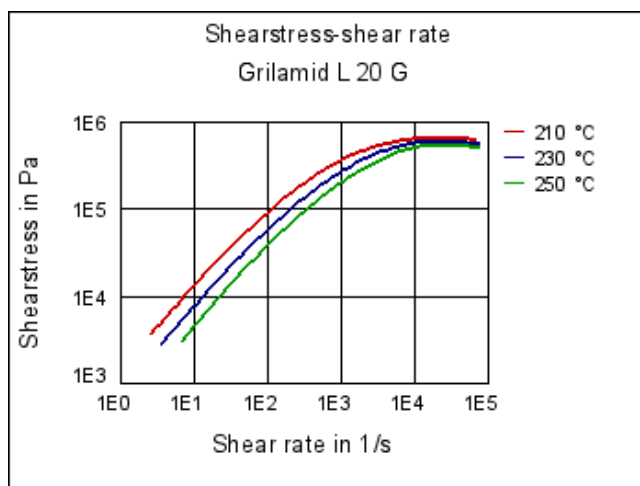
Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	<b>0.8 / -</b>	%	ISO 294-4, 2577
Molding shrinkage (normal)	<b>0.8 / -</b>	%	ISO 294-4, 2577

Diagrams

Viscosity-shear rate



Shearstress-shear rate

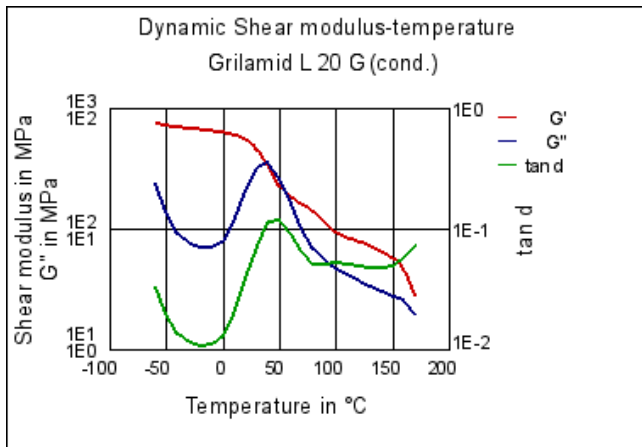


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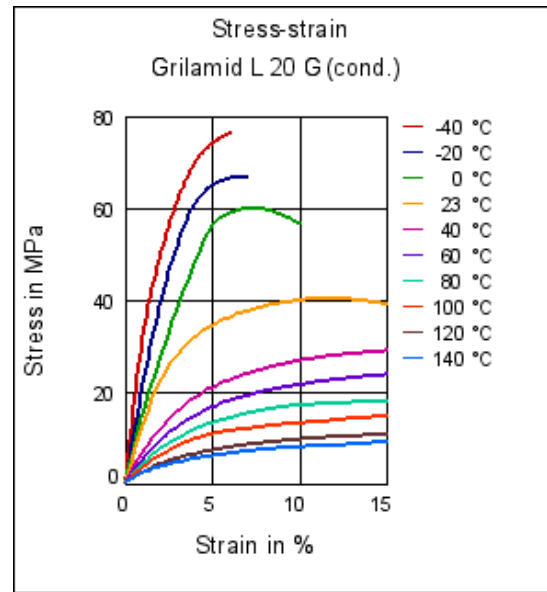
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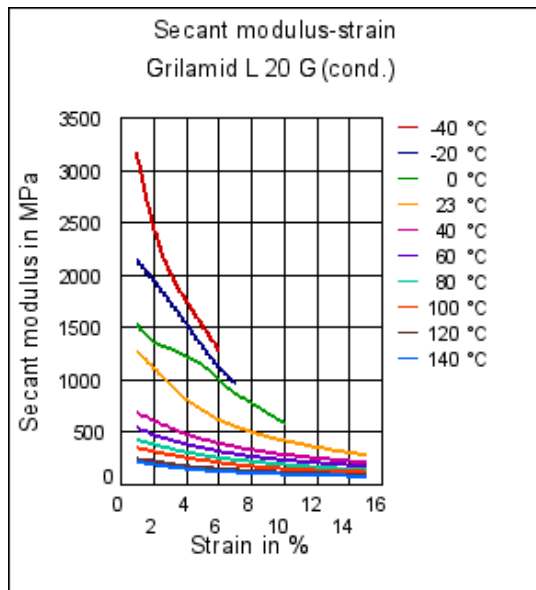
Dynamic Shear modulus-temperature



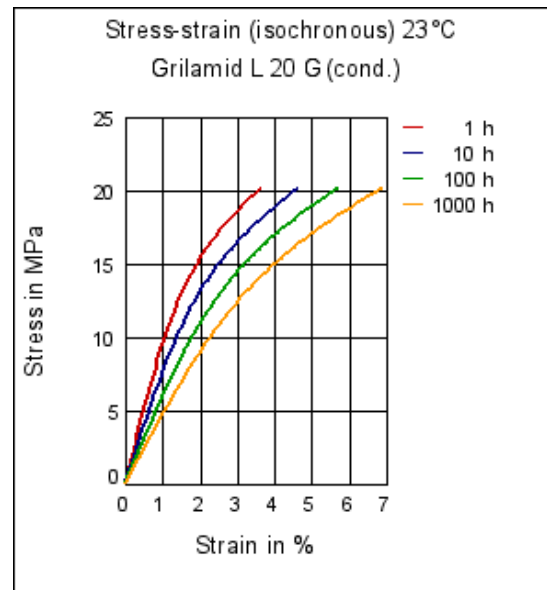
Stress-strain



Secant modulus-strain



Stress-strain (isochronous) 23°C

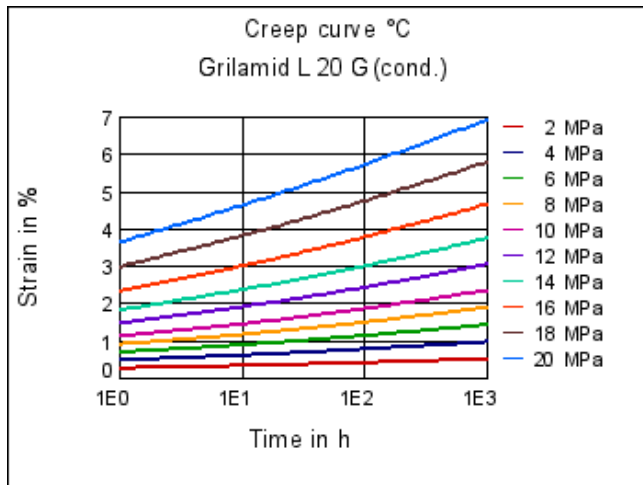


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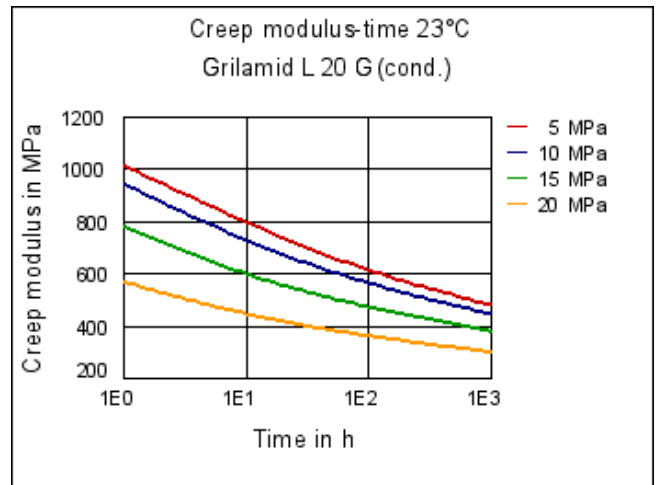
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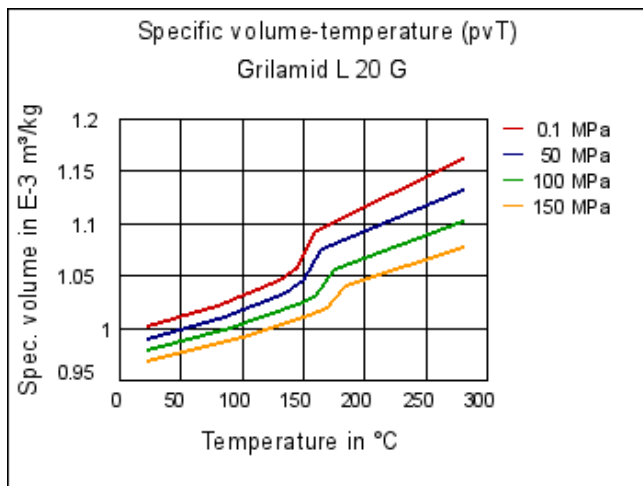
**Creep curve °C**



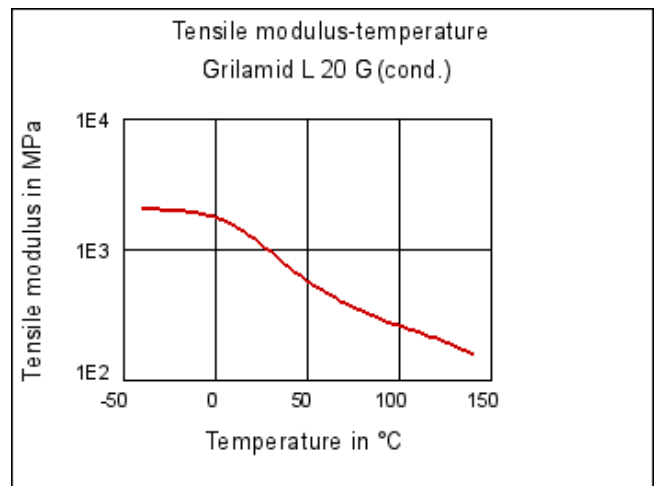
**Creep modulus-time 23°C**



**Specific volume-temperature (pvT)**



**Tensile modulus-temperature**



**Characteristics**

**Processing**

Injection Molding

**Delivery form**

Granules

**Special Characteristics**

Improved UV resistance (outdoor use), Improved heat resistance

**Regional Availability**

North America, Europe, Asia Pacific, South and Central America, Near East/Africa

**Chemical Media Resistance**

**Automotive**

Powertrain and Chassis

**Electricals & Electronics**

Connectors

**Industry & Consumer goods**

Housewares, Mechanical Engineering, Medical devices, Sports & Leisure, Tools & Accessories

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**Acids**

- ☺ Acetic Acid (5% by mass) (23°C)
- ☺ Citric Acid solution (10% by mass) (23°C)
- ☺ Lactic Acid (10% by mass) (23°C)
- ☹ Hydrochloric Acid (36% by mass) (23°C)
- ☹ Nitric Acid (40% by mass) (23°C)
- ☺ Sulfuric Acid (38% by mass) (23°C)
- ☺ Sulfuric Acid (5% by mass) (23°C)
- ☹ Chromic Acid solution (40% by mass) (23°C)

**Bases**

- ☺ Sodium Hydroxide solution (35% by mass) (23°C)
- ☺ Sodium Hydroxide solution (1% by mass) (23°C)
- ☺ Ammonium Hydroxide solution (10% by mass) (23°C)

**Alcohols**

- ☺ Isopropyl alcohol (23°C)
- ☺ Methanol (23°C)
- ☺ Ethanol (23°C)

**Hydrocarbons**

- ☺ n-Hexane (23°C)
- ☺ Toluene (23°C)
- ☺ iso-Octane (23°C)

**Ketones**

- ☺ Acetone (23°C)

**Ethers**

- ☺ Diethyl ether (23°C)

**Mineral oils**

- ☺ SAE 10W40 multigrade motor oil (23°C)
- ☺ SAE 10W40 multigrade motor oil (130°C)
- ☺ SAE 80/90 hypoid-gear oil (130°C)
- ☺ Insulating Oil (23°C)

**Standard Fuels**

- ☺ ISO 1817 Liquid 1 (60°C)
- ☺ ISO 1817 Liquid 2 (60°C)
- ☺ ISO 1817 Liquid 3 (60°C)
- ☺ ISO 1817 Liquid 4 (60°C)
- ☺ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ☺ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ☺ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
- ☺ Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
- ☺ Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

**Salt solutions**

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- ☹️ Sodium Chloride solution (10% by mass) (23°C)
- ☹️ Sodium Hypochlorite solution (10% by mass) (23°C)
- ☹️ Sodium Carbonate solution (20% by mass) (23°C)
- ☹️ Sodium Carbonate solution (2% by mass) (23°C)
- ☹️ Zinc Chloride solution (50% by mass) (23°C)

Other

- ☹️ Ethyl Acetate (23°C)
  - ☹️ Hydrogen peroxide (23°C)
  - ☹️ DOT No. 4 Brake fluid (130°C)
  - ☹️ Ethylene Glycol (50% by mass) in water (108°C)
  - ☹️ 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
  - ☹️ 50% Oleic acid + 50% Olive Oil (23°C)
  - ☹️ Water (23°C)
  - ☹️ Deionized water (90°C)
  - 🚫 Phenol solution (5% by mass) (23°C)
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