

**Grilamid LV-5H**

PA12-GF50

EMS-GRIVORY | a unit of EMS-CHEMIE AG

**Product Texts**

Product designation according to ISO 1874:

PA12, MHR, 18-120, GF50

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	<b>12000 / 11500</b>	MPa	ISO 527-1/-2
Stress at break	<b>155 / 135</b>	MPa	ISO 527-1/-2
Strain at break	<b>5 / 6</b>	%	ISO 527-1/-2
Charpy impact strength (+23°C)	<b>90 / 80</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	<b>90 / 80</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	<b>19 / 20</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	<b>15 / 15</b>	kJ/m <sup>2</sup>	ISO 179/1eA

Mechanical properties (TPE)	dry / cond	Unit	Test Standard
Shore D hardness (15s)	<b>- / 82</b>	-	ISO 868
Ball indentation hardness	<b>- / 155</b>	MPa	ISO 2039-1

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>165 / -</b>	°C	ISO 75-1/-2
Temp. of deflection under load (8.00 MPa)	<b>125 / -</b>	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	<b>15 / -</b>	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	<b>120 / -</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
Max. usage temperature (long term)	<b>90 - 120</b>	°C	ISO 2578
Max. usage temperature (short term)	<b>150</b>	°C	EMS

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>- / 35</b>	kV/mm	IEC 60243-1
Comparative tracking index	<b>- / 600</b>	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	<b>0.8 / -</b>	%	Sim. to ISO 62
Humidity absorption	<b>0.4 / -</b>	%	Sim. to ISO 62
Density	<b>1470 / -</b>	kg/m <sup>3</sup>	ISO 1183

Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	<b>0.1 / -</b>	%	ISO 294-4, 2577
Molding shrinkage (normal)	<b>0.5 / -</b>	%	ISO 294-4, 2577

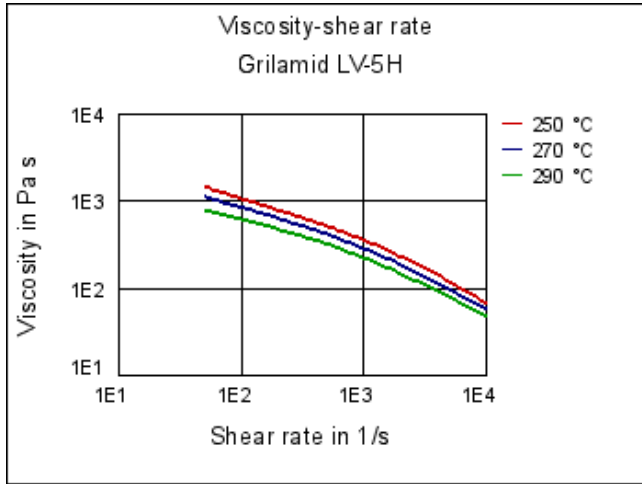
**Diagrams**

**Grilamid LV-5H**

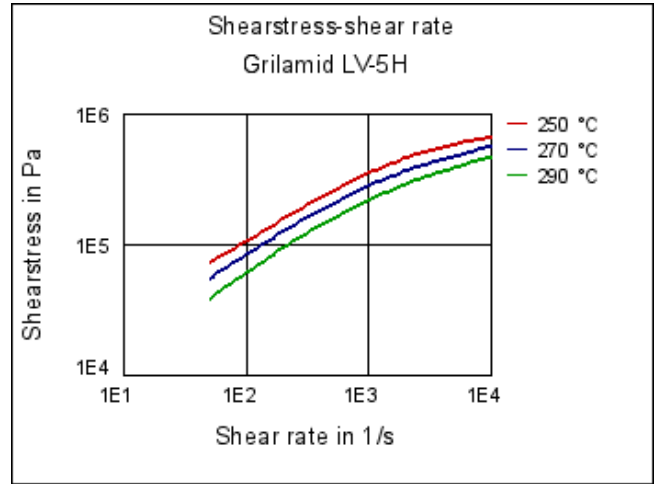
PA12-GF50

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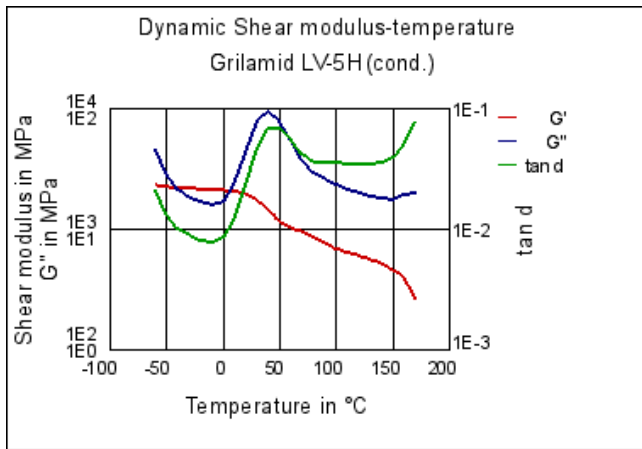
**Viscosity-shear rate**



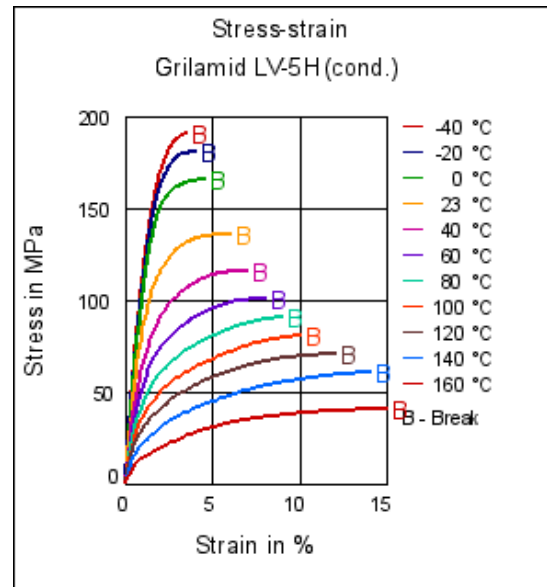
**Shearstress-shear rate**



**Dynamic Shear modulus-temperature**



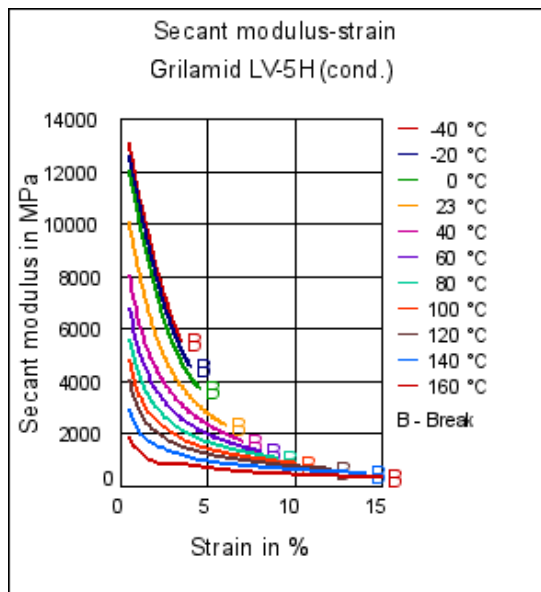
**Stress-strain**



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**Secant modulus-strain**



**Characteristics**

**Processing**

Injection Molding

**Delivery form**

Granules

**Special Characteristics**

High impact or impact modified

**Regional Availability**

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

**Product Attributes**

Hydrolysis resistant, Improved alcohol resistance

**Automotive**

Air intake systems, Compressed air systems, Hydraulic systems, Automotive electr. and electronics, lighting, Cooling and climate control, Fuel systems, Powertrain and Chassis

**Electricals & Electronics**

Electrical appliances, Connectors, Mobile phones and other portable devices

**Industry & Consumer goods**

Heating systems, Housewares, Hydraulics & Pneumatics, Mechanical Engineering, Medical devices, Power transmission, Sanitary, water and gas supply, Sports & Leisure, Tools & Accessories

**Chemical Media Resistance**

**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)

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**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**

- ☺ 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)
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- ☹️ 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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