Grilamid LV-5H

PA12-GF50 EMS-GRIVORY | a unit of EMS-CHEMIE AG

Product Information

Product designation according to ISO 1874:
PA12, MHR, 18-120, GF50

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	**12000** / **11500**	MPa	ISO 527-1/-2
Stress at break	**155** / **135**	MPa	ISO 527-1/-2
Strain at break	**5** / **6**	%	ISO 527-1/-2
Charpy impact strength (+23°C)	**90** / **80**	kJ/m²	ISO 179/1eU
Charpy impact strength (-30°C)	**90** / **80**	kJ/m²	ISO 179/1eU
Charpy notched impact strength (+23°C)	**19** / **20**	kJ/m²	ISO 179/1eA
Charpy notched impact strength (-30°C)	**15** / **15**	kJ/m²	ISO 179/1eA

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

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (10°C/min)	**178** / **-**	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	**165** / **-**	°C	ISO 75-1/-2
Temp. of deflection under load (8.0 MPa)	**125** / **-**	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	**15** / **-**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	**120** / **-**	E-6/K	ISO 11359-1/-2
Burning Behav. at thickness h	**HB** / **-**	class	IEC 60695-11-10
Thickness tested	**0.8** / **-**	mm	IEC 60695-11-10
Max. usage temperature (long term)	**90 - 120**	°C	EMS
Max. usage temperature (short term)	**150**	°C	EMS

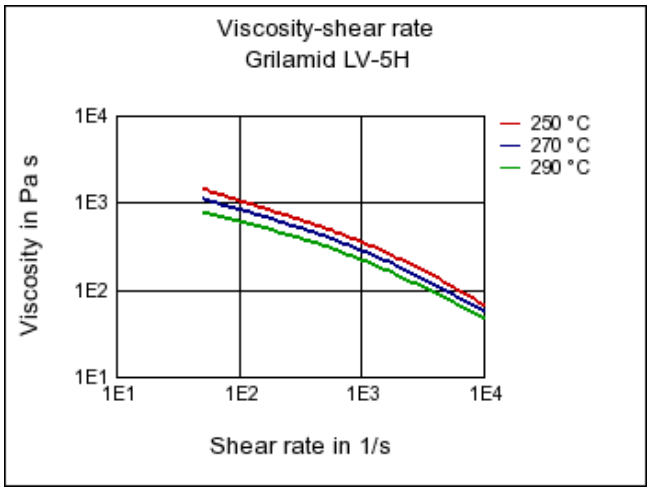
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	**-** / **1E11**	Ohm*m	IEC 60093
Surface resistivity	**-** / **1E12**	Ohm	IEC 60093
Electric strength	**-** / **35**	kV/mm	IEC 60243-1
Comparative tracking index	**-** / **600**	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	**0.8** / **-**	%	Sim. to ISO 62
Humidity absorption	**0.4** / **-**	%	Sim. to ISO 62
Density	**1470** / **-**	kg/m³	ISO 1183

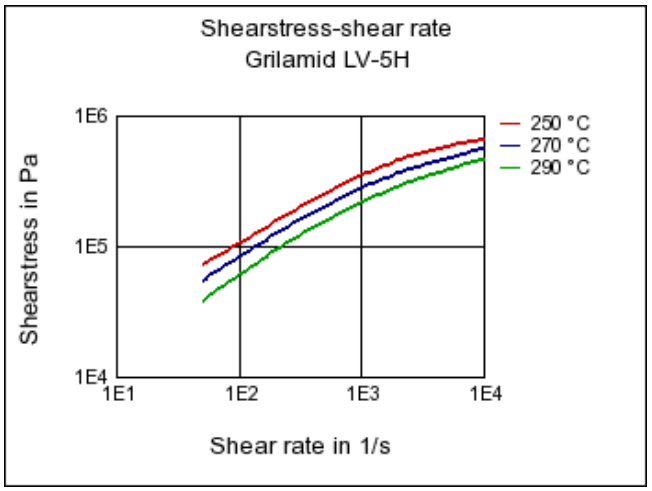
Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	**0.1** / **-**	%	ISO 294-4, 2577
Molding shrinkage (normal)	**0.5** / **-**	%	ISO 294-4, 2577

Diagrams

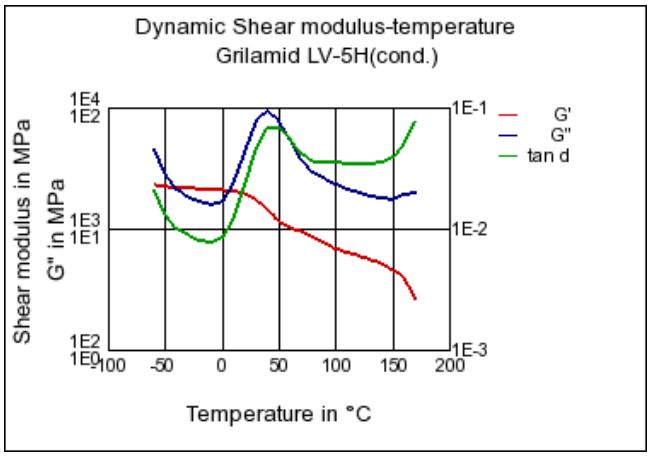
Viscosity-shear rate



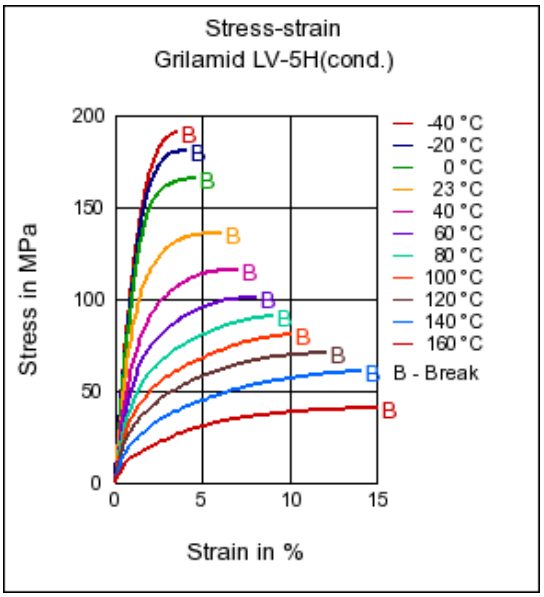
Shearstress-shear rate



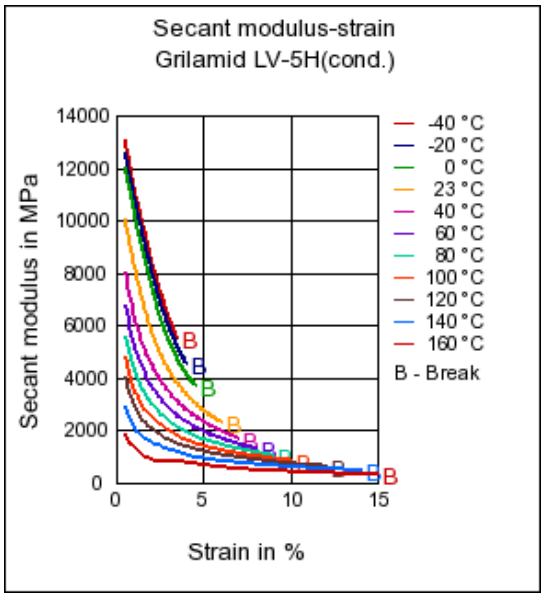
Dynamic Shear modulus-temperature



Stress-strain



Secant modulus-strain



Characteristic

Processing

Injection Molding

Special Characteristics

High impact or impact modified, Improved UV resistance (outdoor use), Improved heat resistance

Regional Availability

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

Product Attributes

Hydrolysis resistant

Automotive

Air intake sytems, 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)
- Chromic Acid solution (40% by mass) (23°C)
- Citric Acid solution (10% by mass) (23°C)
- Hydrochloric Acid (36% by mass) (23°C)
- Lactic Acid (10% 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)

Bases

- Ammonium Hydroxide solution (10% by mass) (23°C)

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

Alcohols

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

Hydrocarbons

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

Ketones

- Acetone (23°C)

Ethers

- Diethyl ether (23°C)

Mineral oils

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

Standard Fuels

- 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)
- 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 with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)

Salt solutions

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

Other

- 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
- 50% Oleic acid + 50% Olive Oil (23°C)
- DOT No. 4 Brake fluid (130°C)
- Deionized water (90°C)
- Ethyl Acetate (23°C)

- Ethylene Glycol (50% by mass) in water (108°C)
- Hydrogen peroxide (23°C)
- Phenol solution (5% by mass) (23°C)
- Water (23°C)