TECHNICAL DATASHEET

Grilamid LV-5H black 9288

PA12-GF50

EMS-GRIVORY
Material Database

Physical
Low moisture absorption, High dimensional stability, Low density

Chemical
Excellent chemical resistance, Highly resistant to hydrolysis, Excellent weatherability, Stress cracking resistant

Mechanical
Stiff, Tough, Good cold impact resistance

Others
Unlimited colourability

Processing
Injection molding

Delivery form
Granules

Special Characteristics
Light stabilized or stable to light

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

Product Information

Product-nomenclature: ISO 16396-PA12,GF50,M1HR,C18-120

Mechanical Properties	dry/cond	Unit	Standard
Tensile modulus	12000 / 11500	MPa	ISO 527
Stress at break	155 / 135	MPa	ISO 527
Strain at break	5 / 6	%	ISO 527
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
Shore D hardness	82 / -		ISO 7619-1
Ball indentation hardness	160 / 155	MPa	ISO 2039-1
Shore A hardness (15s)	- / 82	-	ISO 868

Thermal Properties	dry/cond	Unit	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, 8.00 MPa	125 / -	°C	ISO 75-1/-2
Max. usage temperature (long term)	90 - 120	°C	ISO 2578
Max. usage temperature (short term)	150	°C	EMS

Electrical Properties	dry/cond	Unit	Standard
Electric strength	- / 35	kV/mm	IEC 60243-1
Comparative tracking index	- / 600		IEC 60112
Volume resistivity	- / 1E12	Ohm*m	IEC 62631-3-1

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Electrical Properties	dry/cond	Unit	Standard
Surface resistivity	- / 1E12	Ohm	IEC 62631-3-2

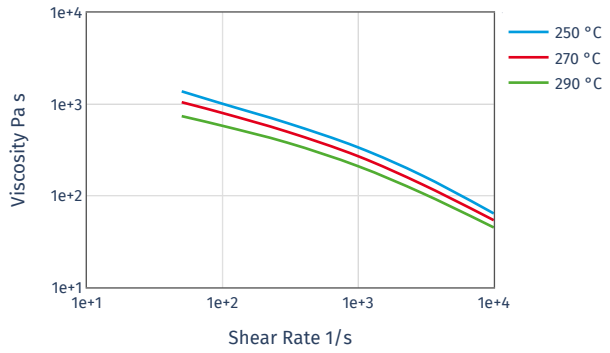
General Properties	dry/cond	Unit	Standard
Density	1470 / -	kg/m³	ISO 1183
Burning behav. at thickness h	HB / -	class	IEC 60695-11-10
Thickness tested	0.8 / -	mm	
Water absorption	0.8 / -	%	Sim. to ISO 62
Humidity absorption	0.4 / -	%	Sim. to ISO 62
Molding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.5 / -	%	ISO 294-4, 2577

Processing Injection Molding	Value	Unit	Standard
Hopper zone	60 - 80	°C	
Feeding zone	≤260	°C	
Compression zone	≤265	°C	
Metering zone	≤270	°C	
Nozzle (IM)	≤265	°C	
Melt	≤260	°C	
Mold surface temperature	≤80	°C	
Injection speed	Medium - High	-	
Pressure	300 - 800	bar	
Dynamic pressure (hydraulic)	5 - 15	bar	
Circumferencial screw speed	0.8 - 1.7	m/s	

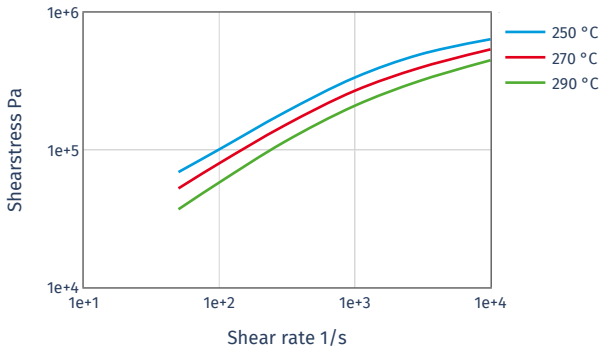
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Diagrams

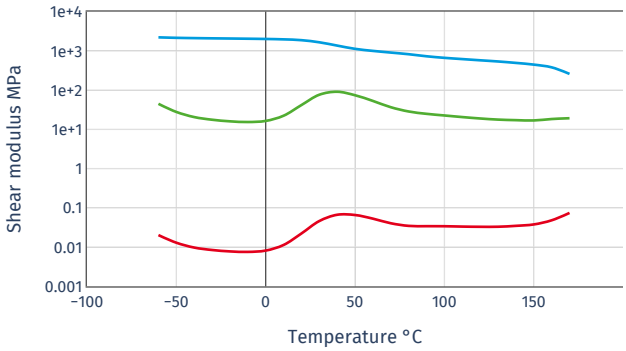
Viscosity-shear rate



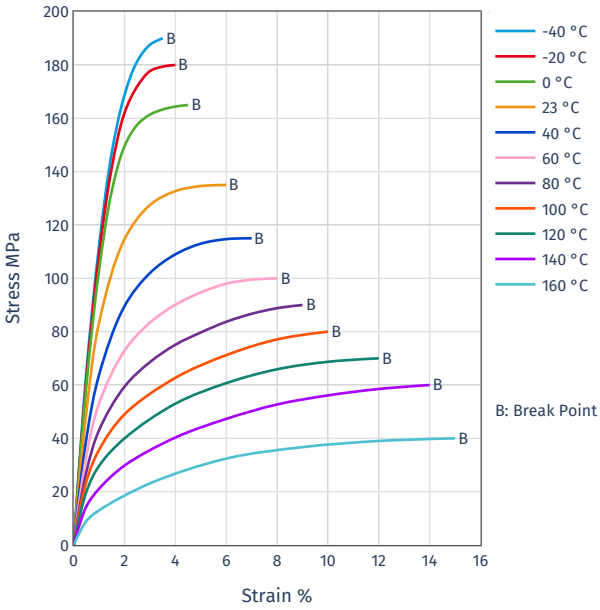
Shearstress-shear rate



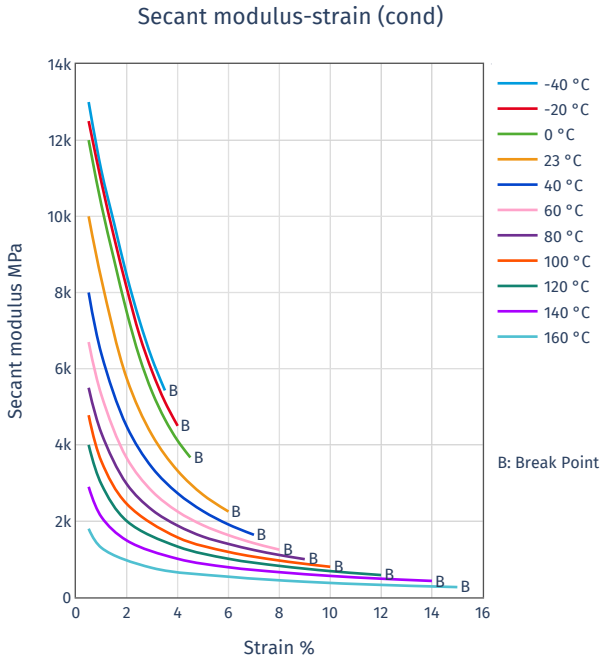
Dynamic shear modulus-temperature (cond)



Stress-strain (cond)



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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)

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

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✓ 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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