TECHNICAL DATASHEET

Grilamid LV-3H black 9590

PA12-GF30

EMS-GRIVORY
Material Database

Physical
Low moisture absorption, High dimensional stability, Low density, Low melting temperature

Chemical
Excellent chemical resistance, Highly resistant to hydrolysis, 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: ISO16396-PA12,GF30,M1HR,C18-060

Mechanical Properties	dry/cond	Unit	Standard
Tensile modulus	7000 / 6000	MPa	ISO 527
Stress at break	120 / 105	MPa	ISO 527
Strain at break	6 / 8	%	ISO 527
Charpy impact strength, +23°C	80 / 80	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	80 / 80	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	20 / 20	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	15 / 15	kJ/m²	ISO 179/1eA
Ball indentation hardness	- / 120	MPa	ISO 2039-1
Shore A hardness (15s)	78 / 77	-	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	160 / -	°C	ISO 75-1/-2
Temp. of deflection under load, 8.00 MPa	90 / -	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	170 / -	°C	ISO 306
Max. usage temperature (long term)	90 - 120	°C	ISO 2578
Max. usage temperature (short term)	150	°C	EMS

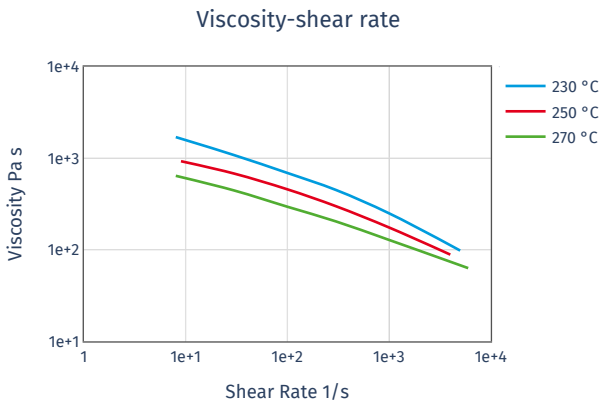
Electrical Properties	dry/cond	Unit	Standard
Electric strength	35 / 35	kV/mm	IEC 60243-1
Comparative tracking index	- / 550		IEC 60112
Volume resistivity	1E11 / 1E11	Ohm*m	IEC 62631-3-1
Surface resistivity	- / 1E12	Ohm	IEC 62631-3-2

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General Properties	dry/cond	Unit	Standard
Density	1220 / -	kg/m³	ISO 1183
Burning behav. at thickness h	HB / -	class	IEC 60695-11-10
Thickness tested	0.8 / -	mm	
Water absorption	1.1 / -	%	Sim. to ISO 62
Humidity absorption	0.6 / -	%	Sim. to ISO 62
Molding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.75 / -	%	ISO 294-4, 2577

Processing Injection Molding	Value	Unit	Standard
Hopper zone	70 - 90	°C	
Feeding zone	240 - 260	°C	
Compression zone	250 - 270	°C	
Metering zone	260 - 280	°C	
Nozzle (IM)	260 - 280	°C	
Melt	260 - 280	°C	
Mold surface temperature	70 - 90	°C	
Injection speed	Medium - High	-	
Pressure	300 - 800	bar	
Dynamic pressure (hydraulic)	50 - 100	bar	
Circumferencial screw speed	0.1 - 0.3	m/s	

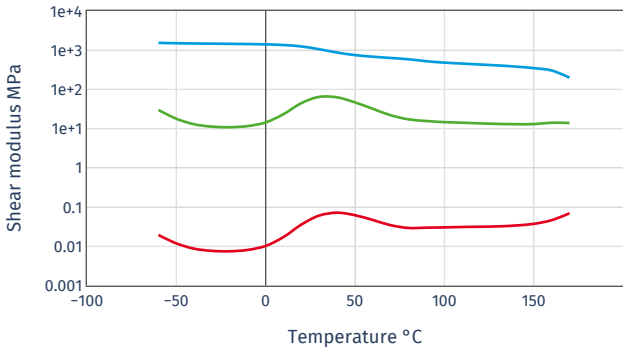
Diagrams



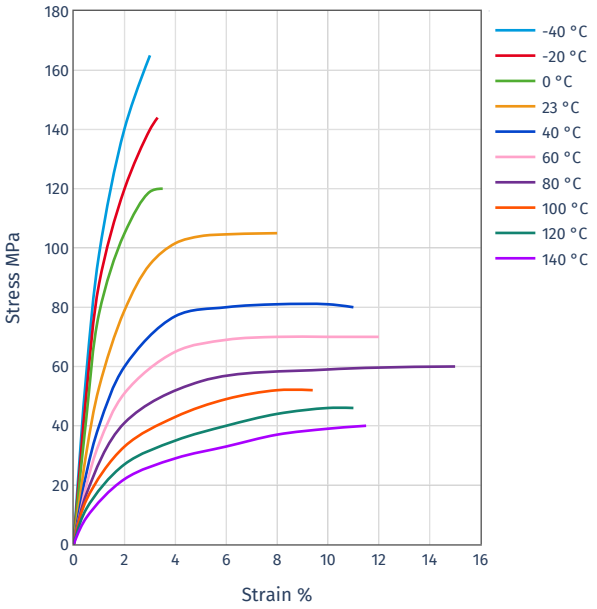


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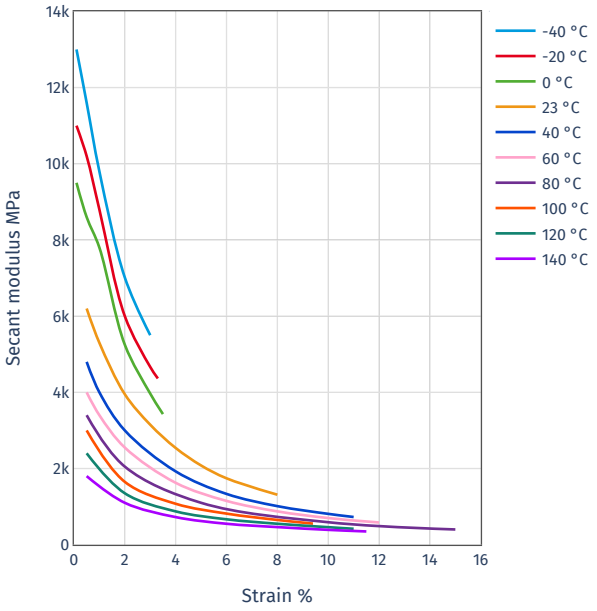
Dynamic shear modulus-temperature (cond)



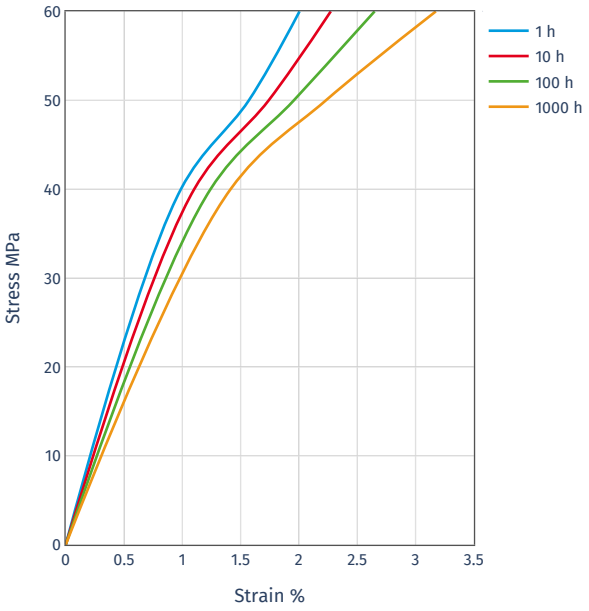
Stress-strain (cond)



Secant modulus-strain (cond)

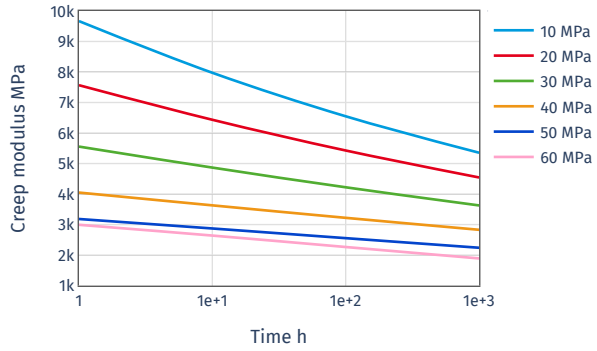


Stress-strain (isochronous) 23°C (cond)

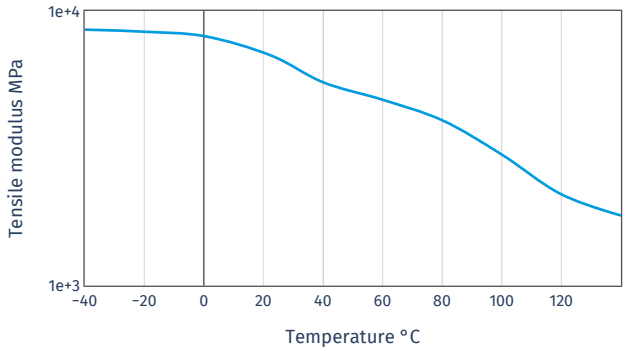


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Creep modulus-time 23°C (cond)



Tensile modulus-temperature (cond)



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

✓ 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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