TECHNICAL DATASHEET

Grilamid L 20 LM natural

PA12

EMS-GRIVORY
Material Database

Processing
Other extrusion

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,,M1HL1R,C18-010N

Mechanical Properties	dry/cond	Unit	Standard
Tensile modulus	1600 / 1100	MPa	ISO 527
Yield stress	45 / 40	MPa	ISO 527
Yield strain	5 / 12	%	ISO 527
Nominal strain at break	>50 / >50	%	ISO 527
Charpy impact strength, +23°C	N / N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	4 / 4	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	3 / 3	kJ/m²	ISO 179/1eA
Shore D hardness	70 / -		ISO 7619-1
Shore A hardness (15s)	- / 70	-	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	50 / -	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	125 / -	°C	ISO 75-1/-2
Max. usage temperature (long term)	100	°C	ISO 2578
Max. usage temperature (short term)	150	°C	EMS

Electrical Properties	dry/cond	Unit	Standard
Electric strength	- / 32	kV/mm	IEC 60243-1
Comparative tracking index	- / 600		IEC 60112
Volume resistivity	- / 1E11	Ohm*m	IEC 62631-3-1
Surface resistivity	- / 1E12	Ohm	IEC 62631-3-2

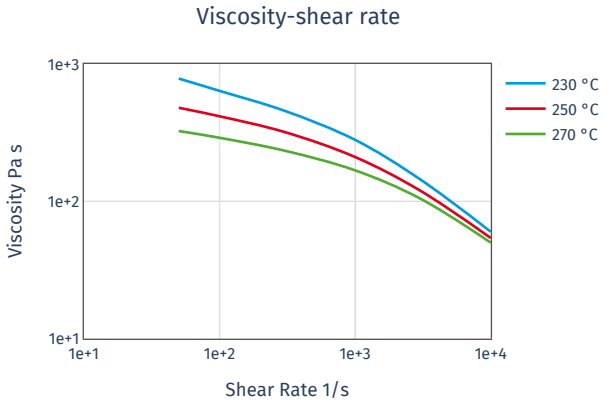
General Properties	dry/cond	Unit	Standard
Density	1010 / -	kg/m³	ISO 1183
Burning behav. at thickness h	HB / -	class	IEC 60695-11-10

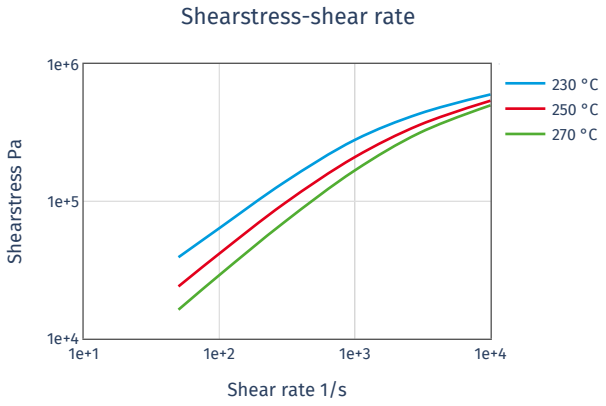
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General Properties	dry/cond	Unit	Standard
Thickness tested	0.8 / -	mm	
Water absorption	1.5 / -	%	Sim. to ISO 62
Humidity absorption	0.7 / -	%	Sim. to ISO 62
Molding shrinkage, parallel	0.8 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.85 / -	%	ISO 294-4, 2577

Processing Extrusion	Value	Unit	Standard
Length	24 - 26	mm	
Compression ratio	2.5		
Hopper zone	60 - 90	°C	
Conveying zone	160 - 170	°C	
Compression zone	190 - 200	°C	
Metering zone	200 - 220	°C	
Melt	200 - 220	°C	
Die	200 - 220	°C	
Adapter	200 - 220	°C	

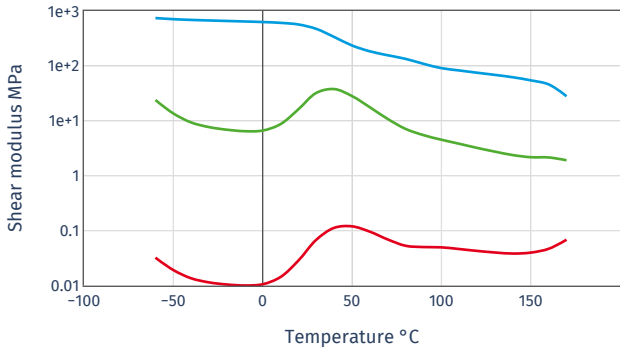
Diagrams



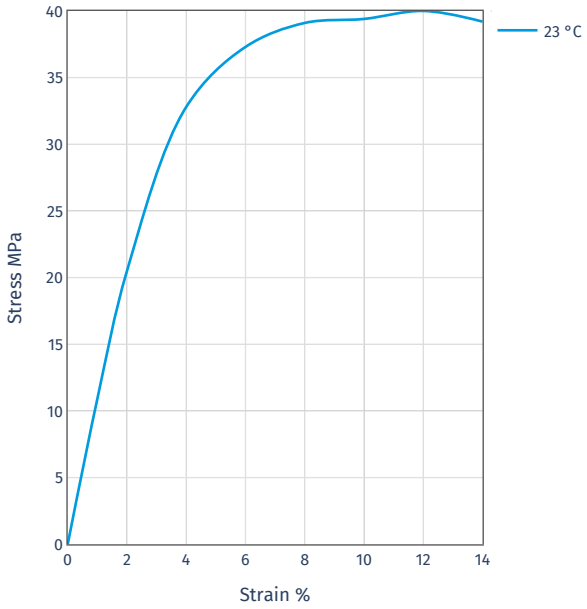


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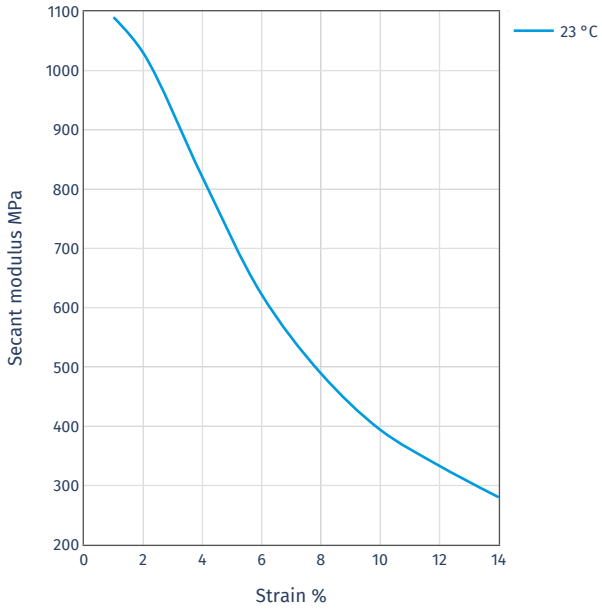
Dynamic shear modulus-temperature (cond)



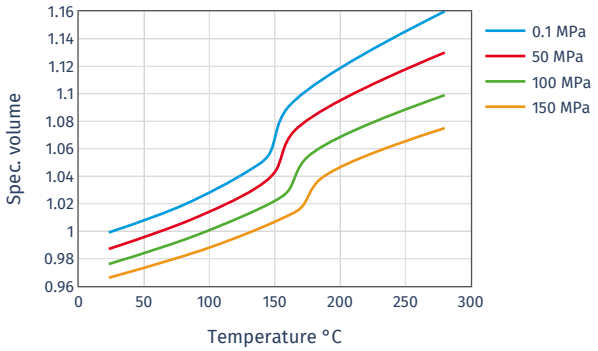
Stress-strain (cond)



Secant modulus-strain (cond)



Spec. volume-temperature (pvT)



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)

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✓ 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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