TECHNICAL DATASHEET

Grilamid L 20 EC black

PA12

EMS-GRIVORY
Material Database

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,CD25,M1HLRZ,C18-020

Mechanical Properties	dry/cond	Unit	Standard
Tensile modulus	2200 / 1900	MPa	ISO 527
Yield stress	55 / 50	MPa	ISO 527
Yield strain	5 / 10	%	ISO 527
Nominal strain at break	25 / 30	%	ISO 527
Charpy impact strength, +23°C	N / N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	- / 50	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	3 / 2	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	3 / 2	kJ/m²	ISO 179/1eA
Shore A hardness (15s)	- / 72	-	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	65 / -	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	135 / -	°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
Volume resistivity	- / 1	Ohm*m	IEC 62631-3-1
Surface resistivity	- / 100	Ohm	IEC 62631-3-2

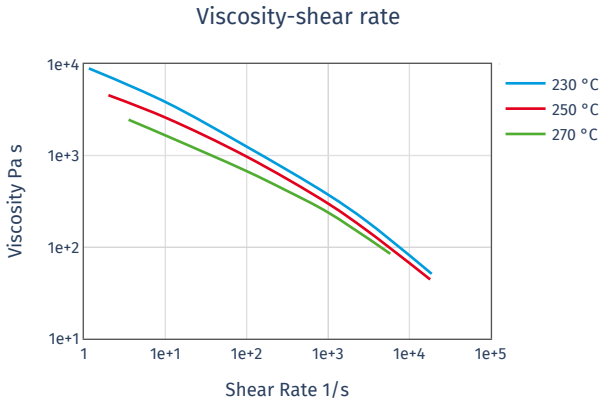
General Properties	dry/cond	Unit	Standard
Density	1160 / -	kg/m³	ISO 1183
Burning behav. at thickness h	HB / -	class	IEC 60695-11-10
Thickness tested	0.8 / -	mm	
Water absorption	1.1 / -	%	Sim. to ISO 62
Humidity absorption	0.6 / -	%	Sim. to ISO 62

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General Properties	dry/cond	Unit	Standard
Molding shrinkage, parallel	1.25 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	1.4 / -	%	ISO 294-4, 2577

Processing Injection Molding	Value	Unit	Standard
Hopper zone	40 - 60	°C	
Feeding zone	220 - 240	°C	
Compression zone	230 - 260	°C	
Metering zone	230 - 270	°C	
Nozzle (IM)	230 - 270	°C	
Melt	240 - 270	°C	
Mold surface temperature	40 - 80	°C	
Injection speed	Low - Medium	-	
Pressure	300 - 800	bar	
Dynamic pressure (hydraulic)	50 - 100	bar	
Circumferencial screw speed	5 - 15	m/s	

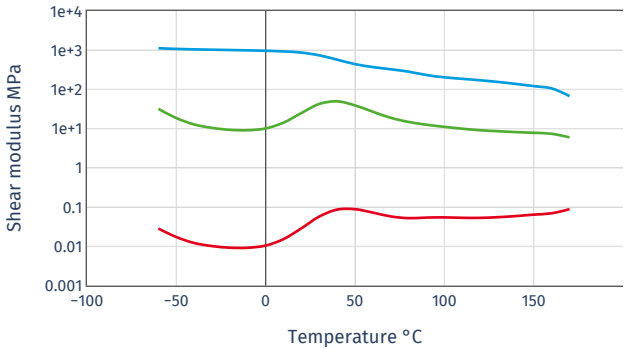
Diagrams



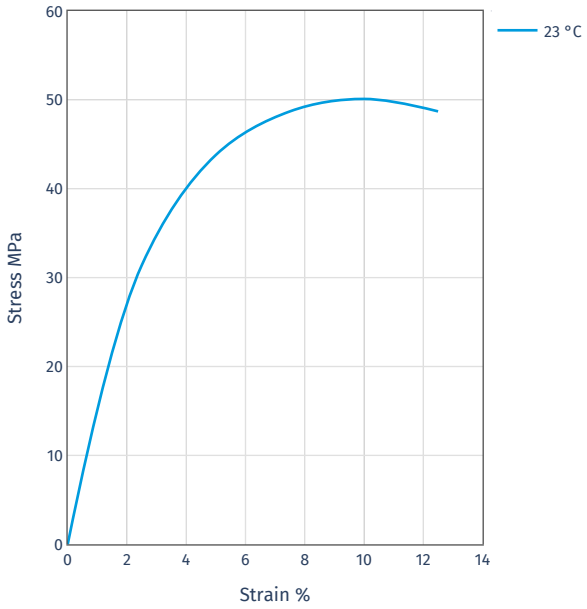


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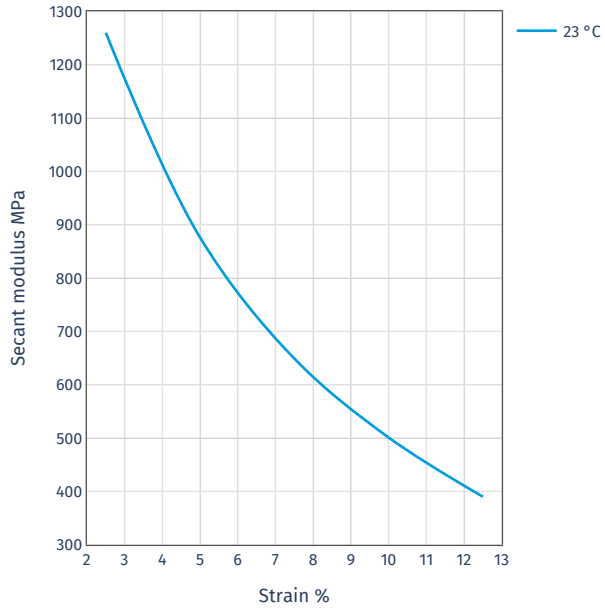
Dynamic shear modulus-temperature (cond)



Stress-strain (cond)



Secant modulus-strain (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)

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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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