

Grivory GM-4H

PA*-MD40

EMS-GRIVORY | a unit of EMS-CHEMIE AG

Product Texts

Product designation according to ISO 1874:

PA66+PA6I/X, MH, 14-070, MD40

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	7000 / 6000	MPa	ISO 527-1/-2
Stress at break	100 / 80	MPa	ISO 527-1/-2
Strain at break	3 / 5	%	ISO 527-1/-2
Charpy impact strength (+23°C)	80 / 100	kJ/m ²	ISO 179/1eU
Charpy impact strength (-30°C)	75 / 90	kJ/m ²	ISO 179/1eU
Charpy notched impact strength (+23°C)	6 / 6	kJ/m ²	ISO 179/1eA
Charpy notched impact strength (-30°C)	4 / 4	kJ/m ²	ISO 179/1eA

Mechanical properties (TPE)	dry / cond	Unit	Test Standard
Ball indentation hardness	225 / 200	MPa	ISO 2039-1

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (10°C/min)	260 / -	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	105 / -	°C	ISO 75-1/-2
Temp. of deflection under load (8.00 MPa)	60 / -	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	90 / -	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	90 / -	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)	100 - 120	°C	ISO 2578
Max. usage temperature (short term)	220	°C	EMS

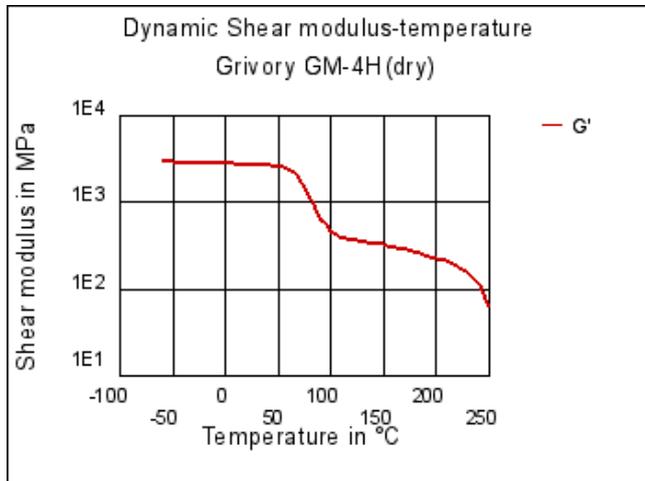
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	1E12 / 1E12	Ohm*m	IEC 60093
Surface resistivity	- / 1E13	Ohm	IEC 60093
Electric strength	26 / 26	kV/mm	IEC 60243-1
Comparative tracking index	- / 600	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	4.5 / -	%	Sim. to ISO 62
Humidity absorption	1.4 / -	%	Sim. to ISO 62
Density	1450 / -	kg/m ³	ISO 1183

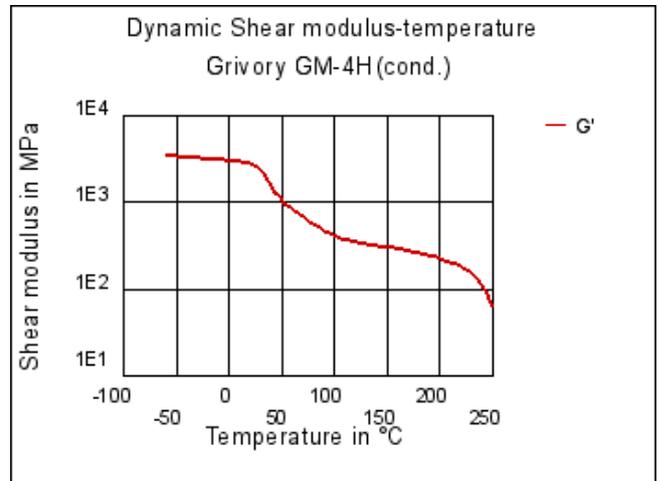
Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	0.8 / -	%	ISO 294-4, 2577
Molding shrinkage (normal)	0.8 / -	%	ISO 294-4, 2577

Diagrams

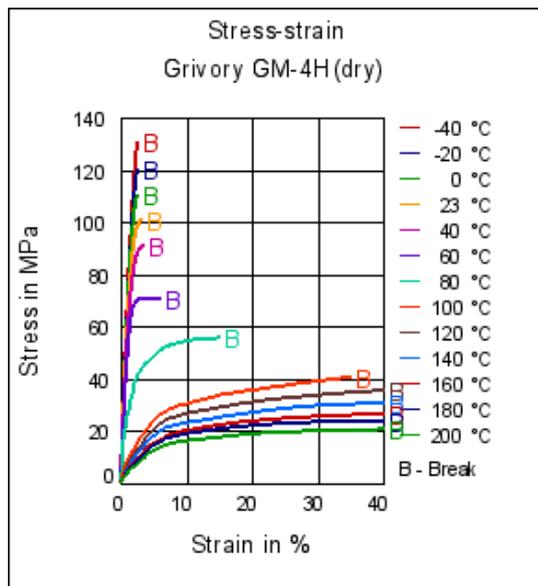

Dynamic Shear modulus-temperature



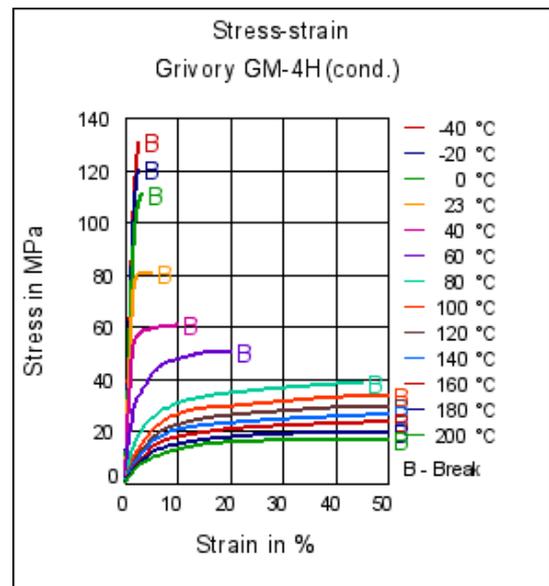
Dynamic Shear modulus-temperature



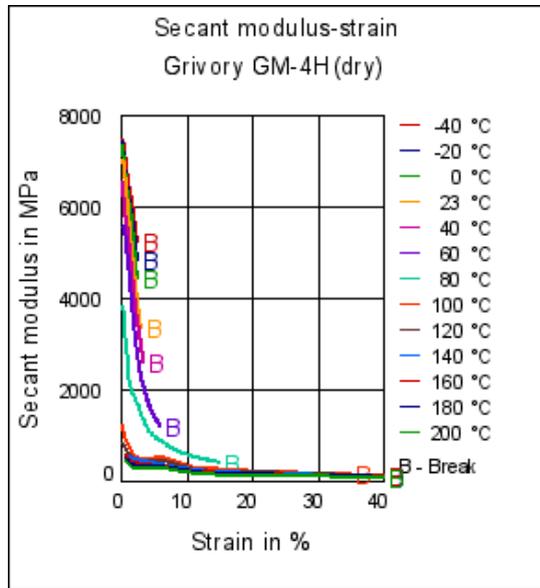
Stress-strain



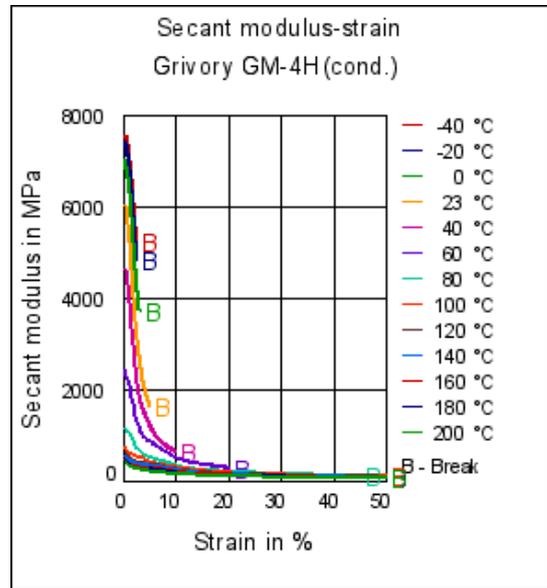
Stress-strain



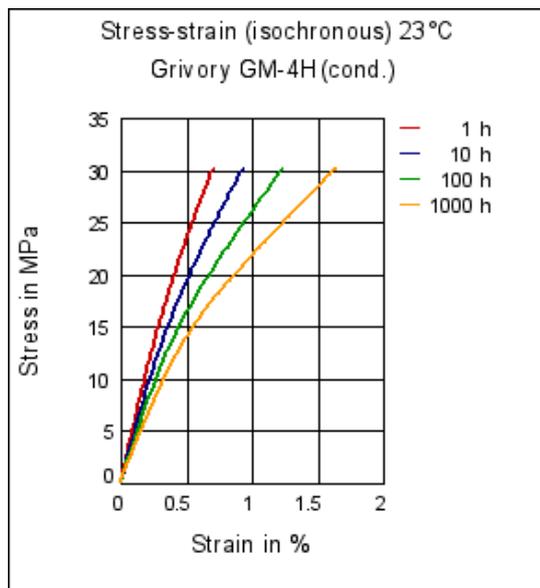
Secant modulus-strain



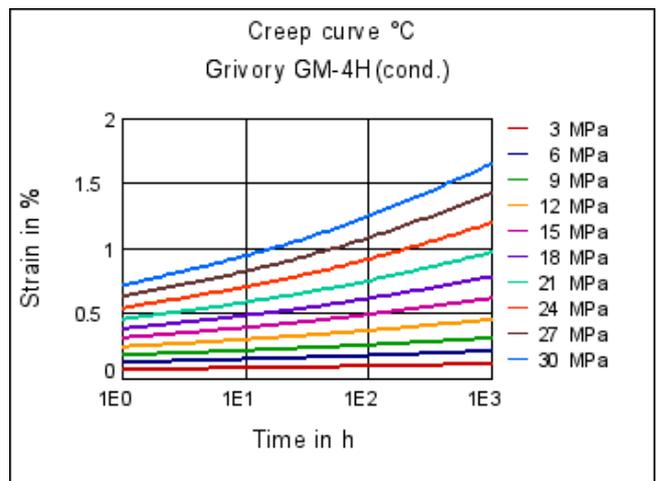
Secant modulus-strain



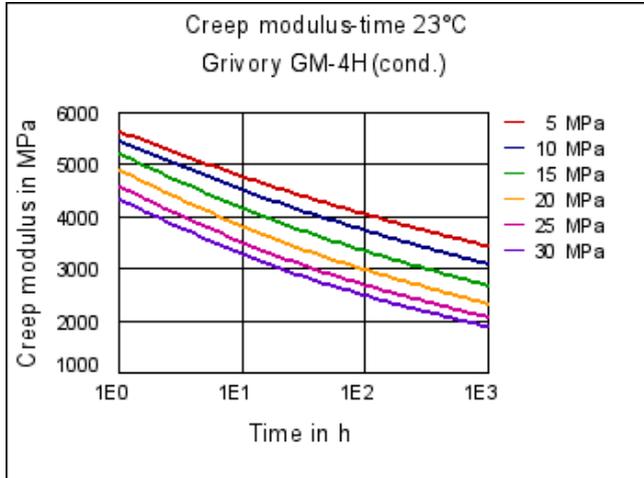
Stress-strain (isochronous) 23°C



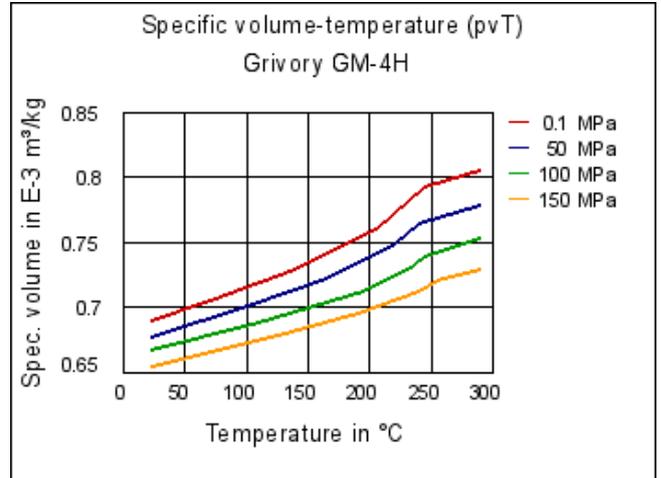
Creep curve °C



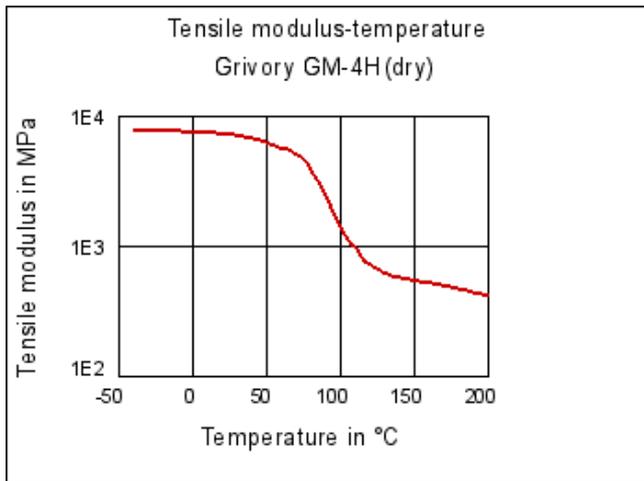
Creep modulus-time 23°C



Specific volume-temperature (pvT)



Tensile modulus-temperature



Characteristics

Processing

Injection Molding

Delivery form

Granules

Special Characteristics

Improved heat resistance

Regional Availability

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

Automotive

Air intake systems, Automotive electr. and electronics, lighting, Cooling and climate control, Powertrain and Chassis , Interior, Exterior

Electricals & Electronics

Electrical appliances, Electrical equipment, Connectors, Energy distribution

Industry & Consumer goods

Housewares, Hydraulics & Pneumatics, Mechanical Engineering, Power transmission, Sports & Leisure, Tools & Accessories

Potable Water Contact

NSF 61



Product Attributes

Partially aromatic Polyamide

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)

