

**Grivory HTV-4H1 nat**  
 PA6T/6I-GF40

EMS-GRIVORY | a unit of EMS-CHEMIE AG

**Product Texts**

Product designation according to ISO 1874:  
 PA 6T/6I, MH, 12-140, GF40

| Mechanical properties                  | dry / cond           | Unit              | Test Standard |
|----------------------------------------|----------------------|-------------------|---------------|
| Tensile Modulus                        | <b>14500 / 14000</b> | MPa               | ISO 527-1/-2  |
| Stress at break                        | <b>220 / 210</b>     | MPa               | ISO 527-1/-2  |
| Strain at break                        | <b>2 / 2</b>         | %                 | ISO 527-1/-2  |
| Charpy impact strength (+23°C)         | <b>70 / 70</b>       | kJ/m <sup>2</sup> | ISO 179/1eU   |
| Charpy impact strength (-30°C)         | <b>70 / 70</b>       | kJ/m <sup>2</sup> | ISO 179/1eU   |
| Charpy notched impact strength (+23°C) | <b>8 / 8</b>         | kJ/m <sup>2</sup> | ISO 179/1eA   |
| Charpy notched impact strength (-30°C) | <b>8 / 8</b>         | kJ/m <sup>2</sup> | ISO 179/1eA   |

| Mechanical properties (TPE) | dry / cond       | Unit | Test Standard |
|-----------------------------|------------------|------|---------------|
| Ball indentation hardness   | <b>310 / 300</b> | MPa  | ISO 2039-1    |

| Thermal properties                           | dry / cond     | Unit  | Test Standard   |
|----------------------------------------------|----------------|-------|-----------------|
| Melting temperature (10°C/min)               | <b>325 / -</b> | °C    | ISO 11357-1/-3  |
| Temp. of deflection under load (1.80 MPa)    | <b>280 / -</b> | °C    | ISO 75-1/-2     |
| Temp. of deflection under load (8.00 MPa)    | <b>175 / -</b> | °C    | ISO 75-1/-2     |
| Coeff. of linear therm. expansion (parallel) | <b>15 / -</b>  | E-6/K | ISO 11359-1/-2  |
| Coeff. of linear therm. expansion (normal)   | <b>50 / -</b>  | E-6/K | ISO 11359-1/-2  |
| Burning Behav. at thickness h                | <b>HB / -</b>  | class | IEC 60695-11-10 |
| Thickness tested                             | <b>0.8 / -</b> | mm    | IEC 60695-11-10 |
| Max. usage temperature (long term)           | <b>150</b>     | °C    | ISO 2578        |
| Max. usage temperature (short term)          | <b>270</b>     | °C    | EMS             |

| Electrical properties      | dry / cond         | Unit  | Test Standard |
|----------------------------|--------------------|-------|---------------|
| Volume resistivity         | <b>1E11 / 1E11</b> | Ohm*m | IEC 60093     |
| Surface resistivity        | <b>- / 1E12</b>    | Ohm   | IEC 60093     |
| Electric strength          | <b>35 / 35</b>     | kV/mm | IEC 60243-1   |
| Comparative tracking index | <b>- / 600</b>     | -     | IEC 60112     |

| Other properties    | dry / cond      | Unit              | Test Standard  |
|---------------------|-----------------|-------------------|----------------|
| Water absorption    | <b>3.5 / -</b>  | %                 | Sim. to ISO 62 |
| Humidity absorption | <b>1.5 / -</b>  | %                 | Sim. to ISO 62 |
| Density             | <b>1530 / -</b> | kg/m <sup>3</sup> | ISO 1183       |

| Rheo/Phys properties         | dry / cond     | Unit | Test Standard   |
|------------------------------|----------------|------|-----------------|
| Molding shrinkage (parallel) | <b>0.1 / -</b> | %    | ISO 294-4, 2577 |
| Molding shrinkage (normal)   | <b>0.7 / -</b> | %    | ISO 294-4, 2577 |

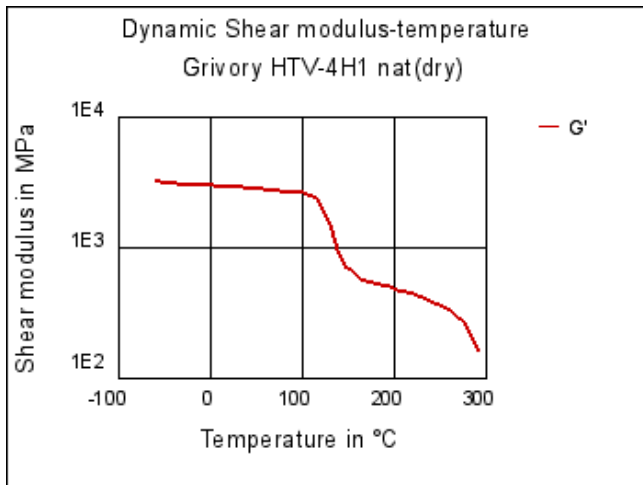
**Diagrams**

Grivory HTV-4H1 nat

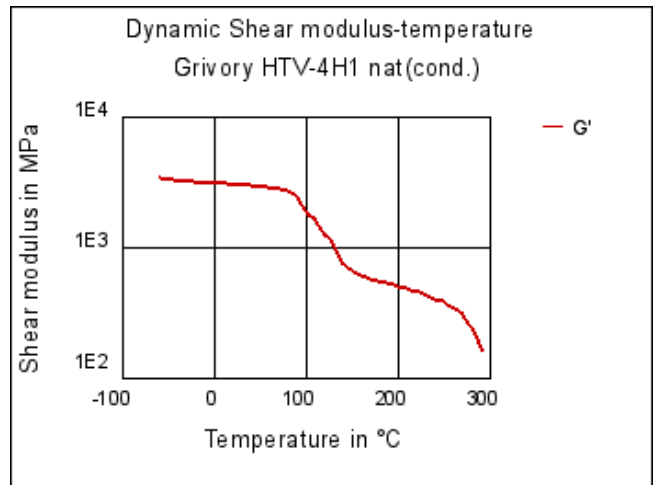
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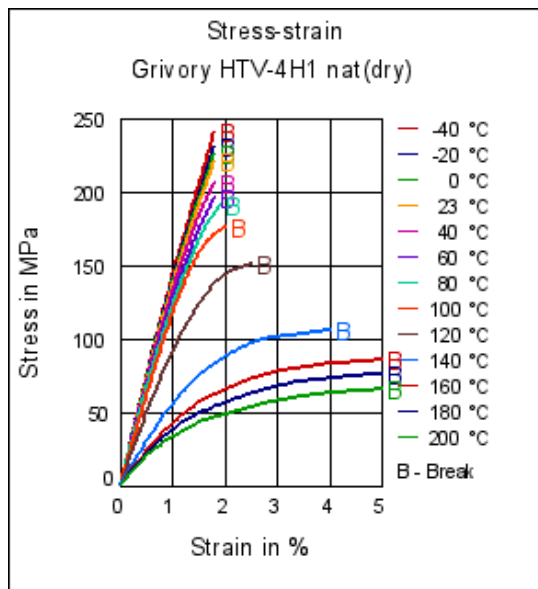
Dynamic Shear modulus-temperature



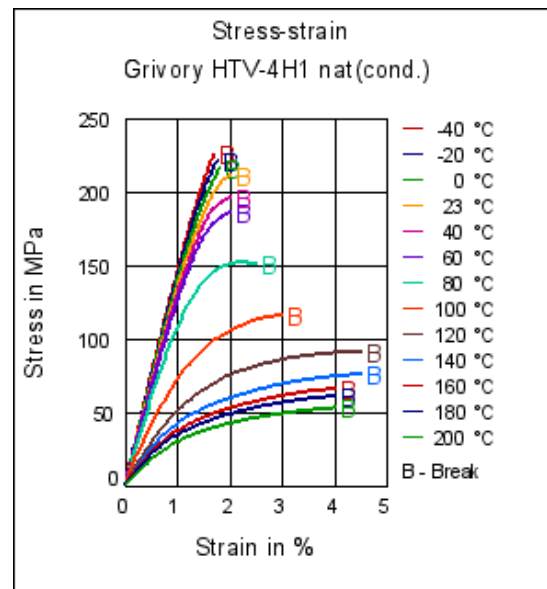
Dynamic Shear modulus-temperature



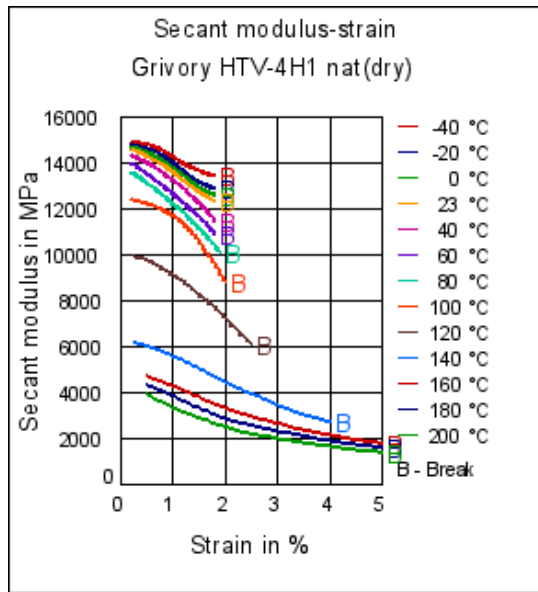
Stress-strain



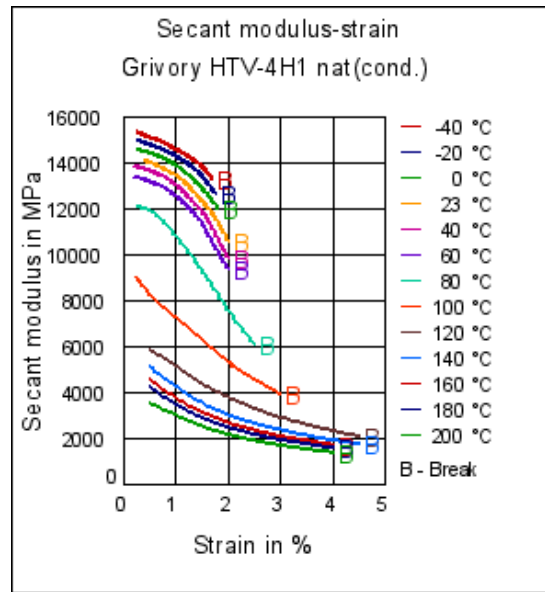
Stress-strain



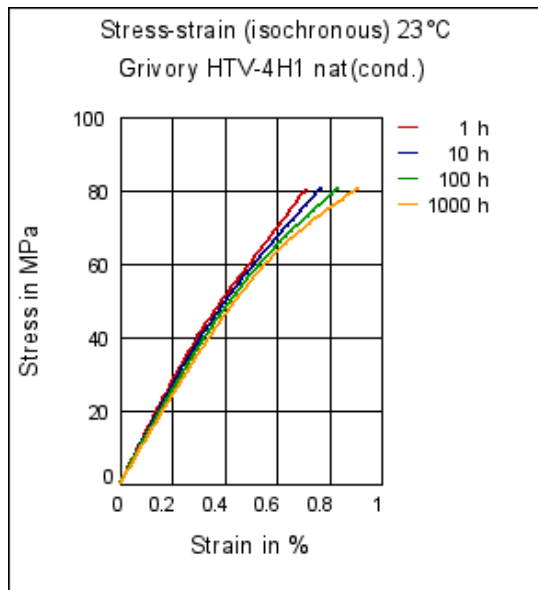
Secant modulus-strain



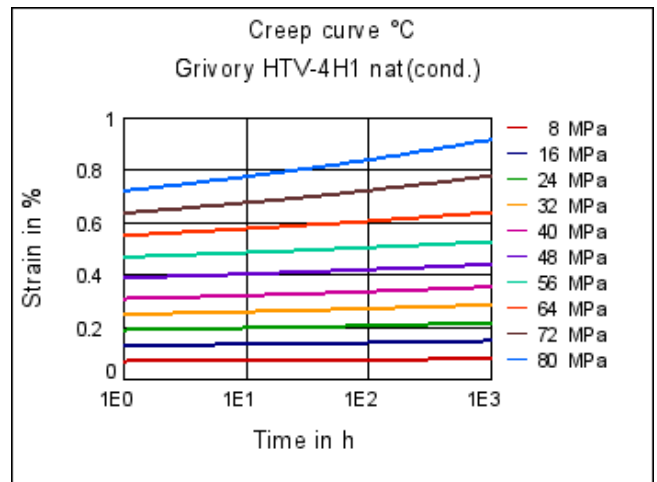
Secant modulus-strain



Stress-strain (isochronous) 23°C



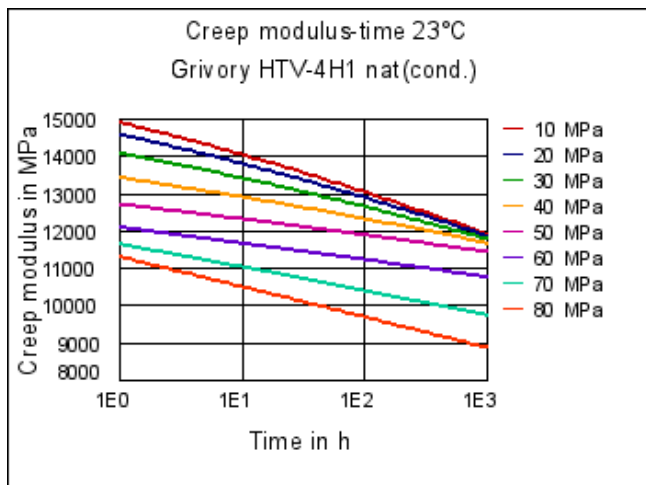
Creep curve °C



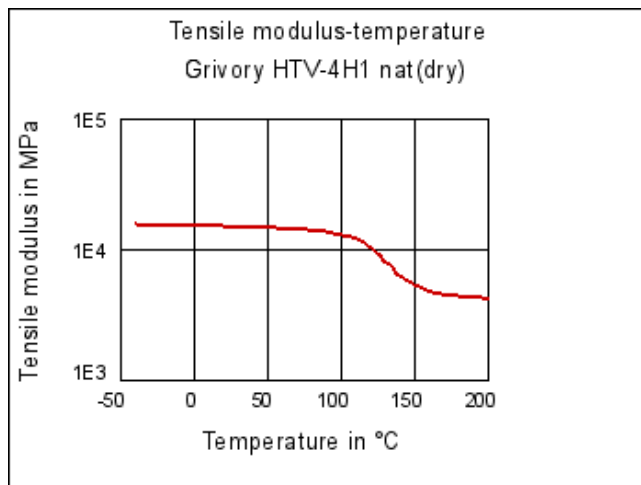
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**Creep modulus-time 23°C**



**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**

Fuel systems, Powertrain and Chassis , Interior

**Electricals & Electronics**

Electrical appliances, Energy distribution

**Industry & Consumer goods**

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

**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**




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-  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)