Grilamid TR 55

PA12/MACMI

EMS-GRIVORY | a unit of EMS-CHEMIE AG

Product Texts

Product designation according to ISO 1874:
PA 12/MACMI, GT, 11-020

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	**2200 / 2200**	MPa	ISO 527-1/-2
Yield stress	**75 / 75**	MPa	ISO 527-1/-2
Yield strain	**7 / 9**	%	ISO 527-1/-2
Nominal strain at break	**>50 / >50**	%	ISO 527-1/-2
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)	**7 / 8**	kJ/m²	ISO 179/1eA
Charpy notched impact strength (-30°C)	**7 / 7**	kJ/m²	ISO 179/1eA

Mechanical properties (TPE)	dry / cond	Unit	Test Standard
Ball indentation hardness	**- / 120**	MPa	ISO 2039-1

Thermal properties	dry / cond	Unit	Test Standard
Glass transition temperature (10°C/min)	**160 / -**	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	**130 / -**	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	**145 / -**	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	**80 / -**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	**80 / -**	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)	**80 - 100**	°C	ISO 2578
Max. usage temperature (short term)	**120**	°C	EMS

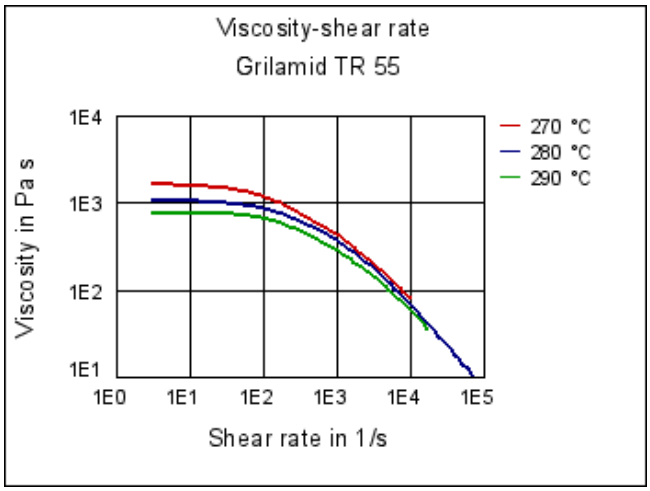
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	**- / 1E11**	Ohm*m	IEC 60093
Surface resistivity	**- / 1E12**	Ohm	IEC 60093
Electric strength	**- / 31**	kV/mm	IEC 60243-1
Comparative tracking index	**- / 600**	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	**3.5 / -**	%	Sim. to ISO 62
Humidity absorption	**1.5 / -**	%	Sim. to ISO 62
Density	**1060 / -**	kg/m³	ISO 1183

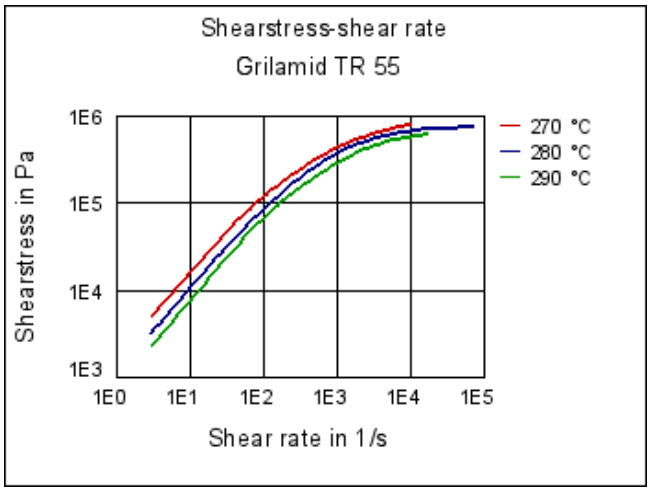
Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	**0.6 / -**	%	ISO 294-4, 2577
Molding shrinkage (normal)	**0.7 / -**	%	ISO 294-4, 2577

Diagrams

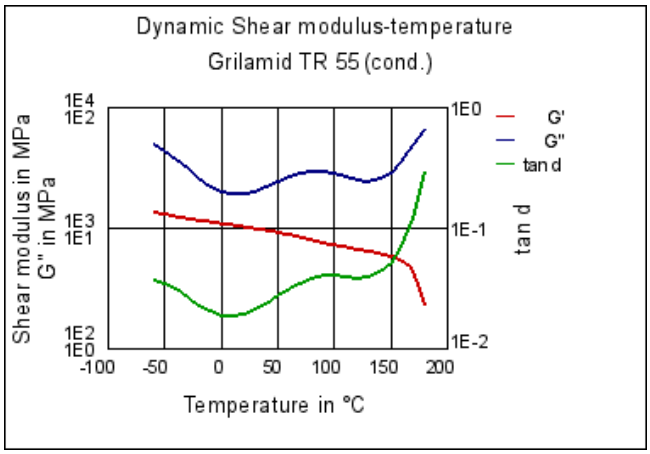
Viscosity-shear rate



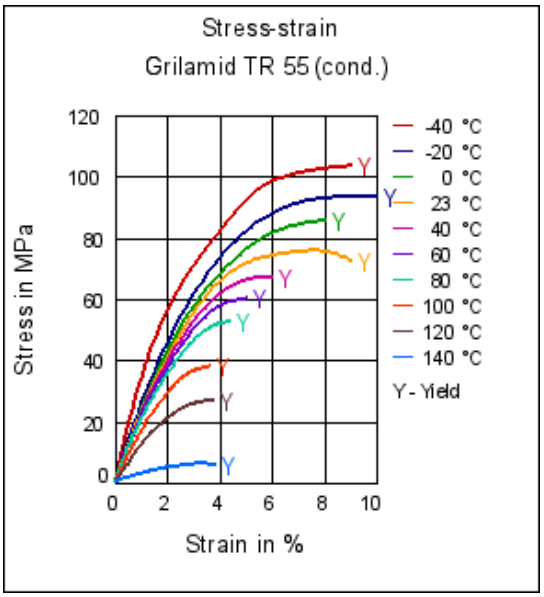
Shearstress-shear rate



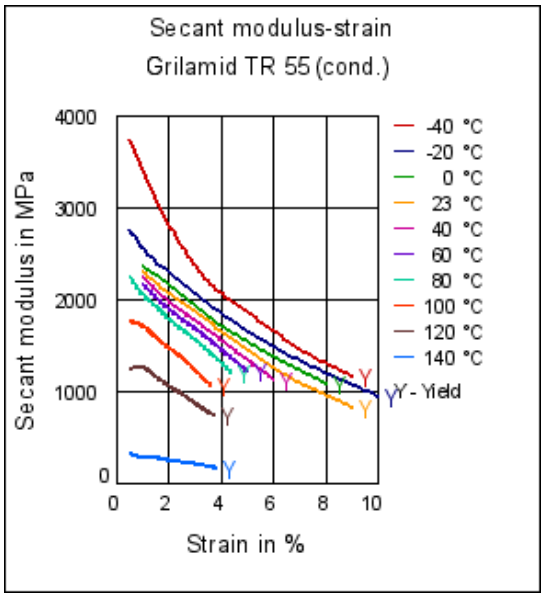
Dynamic Shear modulus-temperature



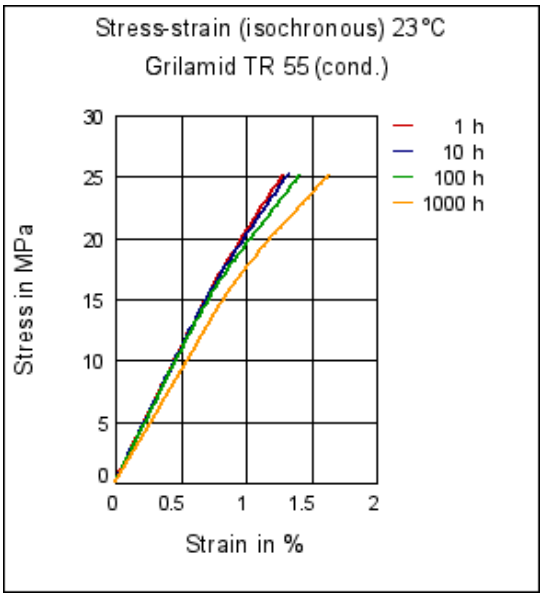
Stress-strain



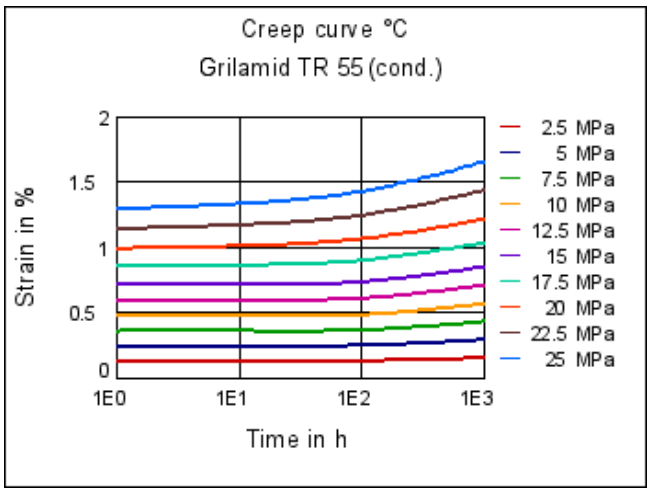
Secant modulus-strain



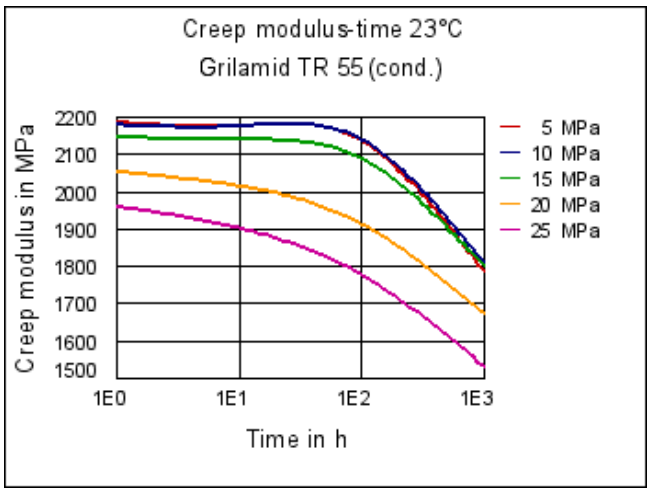
Stress-strain (isochronous) 23°C



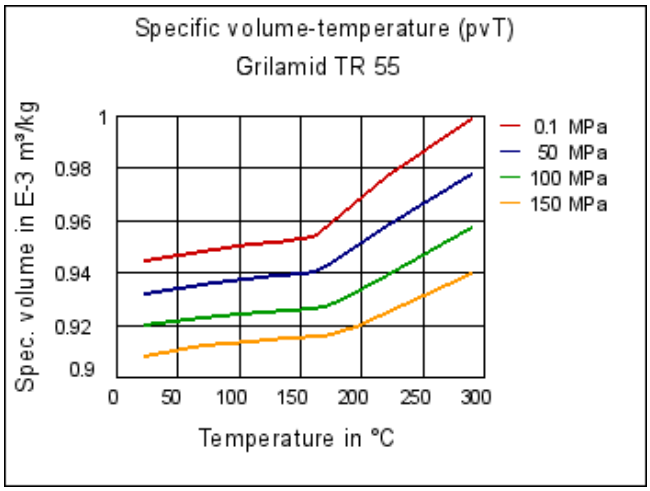
Creep curve °C



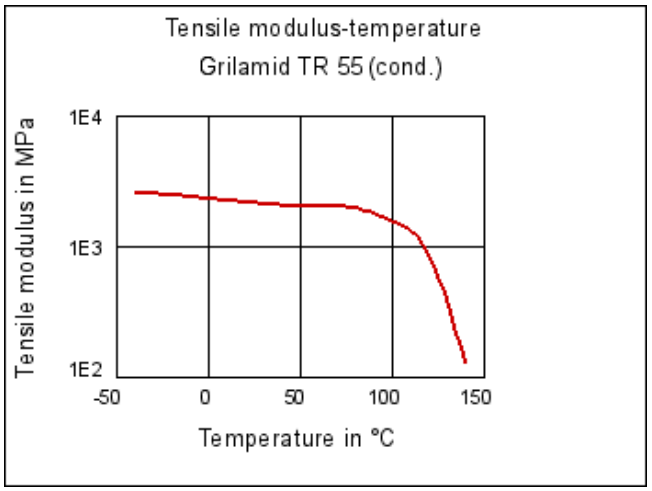
Creep modulus-time 23°C



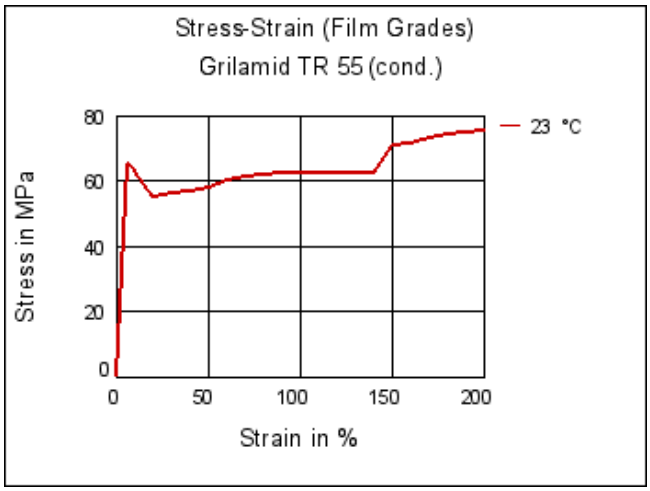
Specific volume-temperature (pvT)



Tensile modulus-temperature



Stress-Strain (Film Grades)



Characteristics

Processing

Injection Molding, Other Extrusion

Optics

Lenses, Optical components

Delivery form

Granules

Packaging

Non oriented film, Cosmetics / Personal care, Medical packaging

Special Characteristics

Transparent

Burning Behaviour

UL V2

Regional Availability

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

Food Contact

EU Requirements, FDA

Biocompatibility

USP VI, ISO 10993

Automotive

Automotive electr. and electronics, lighting, Cooling and climate control, Fuel systems, Powertrain and Chassis , Interior

Potable Water Contact

NSF 61, KTW, WRAS, DVGW W270

Electricals & Electronics

Electrical appliances, Electrical equipment, Cables & Tubes, Energy distribution, Lighting, Mobile phones and other portable devices

Industry & Consumer goods

Heating systems, Housewares, Hydraulics & Pneumatics, Mechanical Engineering, Medical devices, Power transmission, Sanitary, water and gas supply, 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

- 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)