

Rilsamid® AESNO P40 TL

PA12

Rilsamid® AESNO P40 TL (PA12-P, EHL, 22-004) resin

Rilsamid® AESNO P40 TL resin is a natural polyamide. This grade is plasticized and designed for tube extrusion.

Rilsamid® AESNO P40 TL resin falls into the PA12-PHL category according to DIN 73378.

Rheological properties

	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	16 / *	cm ³ /10min	ISO 1133
Temperature	235 / *	°C	-
Load	5 / *	kg	-

Mechanical properties

	dry / cond	Unit	Test Standard
Tensile Modulus	430 / 380	MPa	ISO 527-1/-2
Yield stress	26 / 23	MPa	ISO 527-1/-2
Yield strain	24 / 26	%	ISO 527-1/-2
Nominal strain at break	>50 / >50	%	ISO 527-1/-2
Charpy impact strength, +23°C	- / N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	- / N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	- / N	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	- / 5	kJ/m ²	ISO 179/1eA
Puncture - maximum force, -30°C	- / 5600	N	ISO 6603-2
Puncture energy, -30°C	- / 60	J	ISO 6603-2

Thermal properties

	dry / cond	Unit	Test Standard
Melting temperature, 10°C/min	174 / *	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.80 MPa	46 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	90 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	130 / *	°C	ISO 306
Coeff. of linear therm. expansion, parallel	140 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.6 / *	mm	-
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	3.2 / *	mm	-
Oxygen index	20 / *	%	ISO 4589-1/-2

Electrical properties

	dry / cond	Unit	Test Standard
Volume resistivity	- / 1E9	Ohm*m	IEC 60093
Surface resistivity	* / 5E11	Ohm	IEC 60093
Electric strength	- / 24	kV/mm	IEC 60243-1

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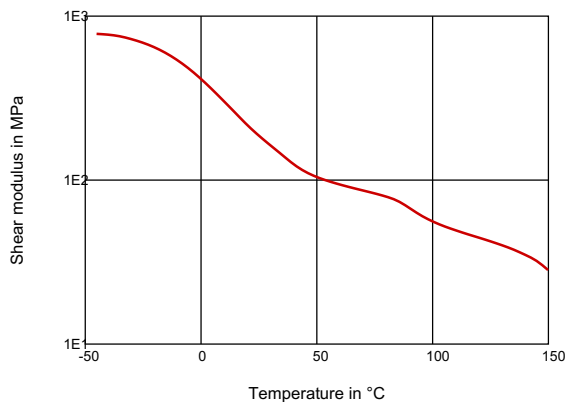
Comparative tracking index	* / 600	-	IEC 60112
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Other properties	dry / cond	Unit	Test Standard
Water absorption	1.2 / *	%	Sim. to ISO 62
Density	1030 / 1030	kg/m ³	ISO 1183

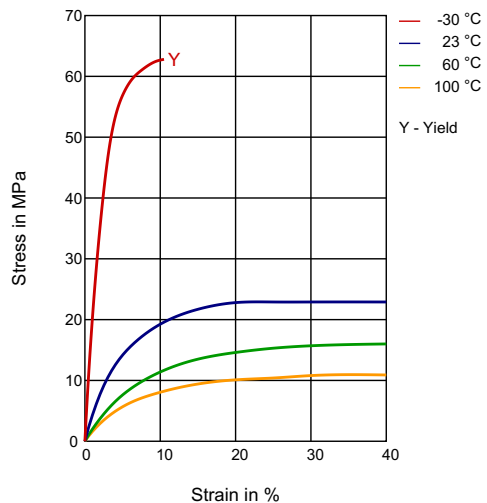
Test specimen production	Value	Unit	Test Standard
Injection Molding, melt temperature	270	°C	ISO 294
Injection Molding, mold temperature	50	°C	ISO 10724
Injection Molding, pressure at hold	16	MPa	ISO 294

Diagrams

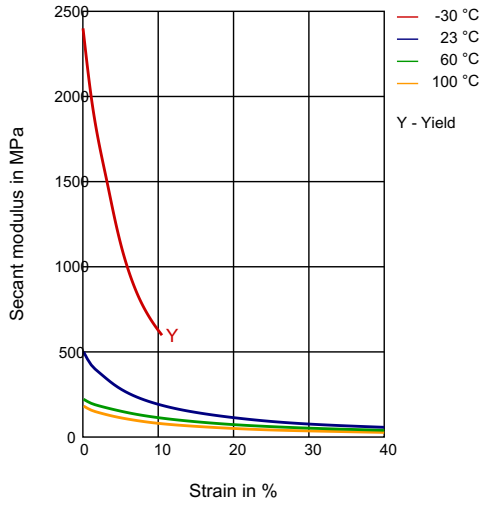
Dynamic Shear modulus-temperature



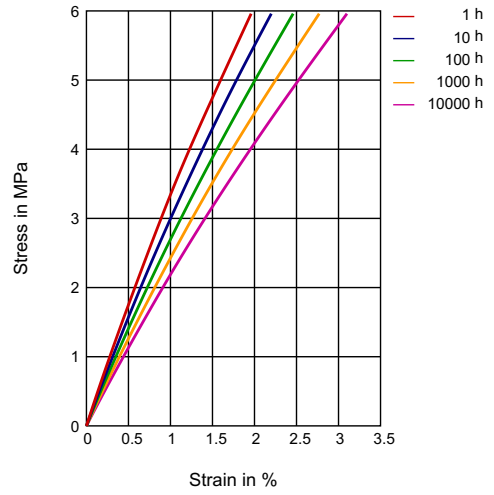
Stress-strain



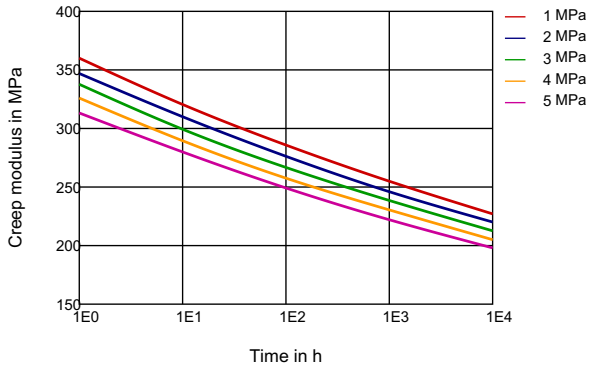
Secant modulus-strain



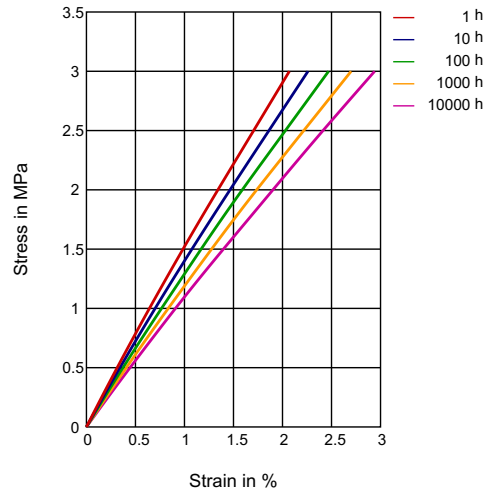
Stress-strain (isochronous) 23 °C



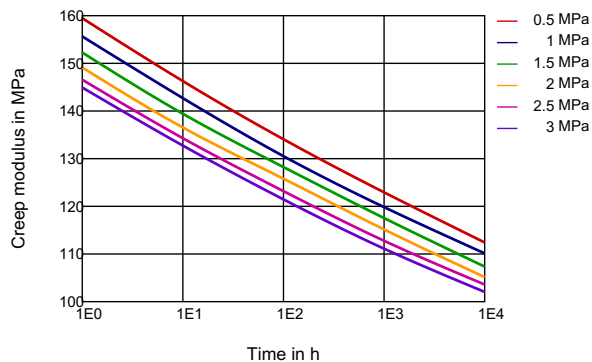
Creep modulus-time 23 °C



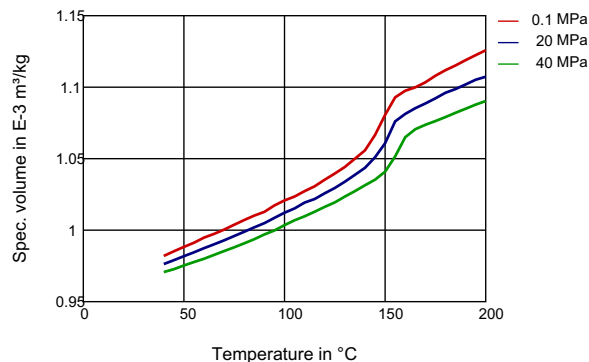
Stress-strain (isochronous) 80 °C



Creep modulus-time 80°C



Specific volume-temperature (pvT)



Characteristics

Processing

Injection Molding, Profile Extrusion, Other Extrusion

Delivery form

Pellets

Additives

Lubricants, Plasticizer

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

- ✓ Methanol (23°C)
- ✓ Ethanol (23°C)

Hydrocarbons

- ✓ n-Hexane (23°C)
- ✓ Toluene (23°C)

Ketones

- ✓ Acetone (23°C)

Special Characteristics

Light stabilized or stable to light, U.V. stabilized or stable to weather, Heat stabilized or stable to heat

Regional Availability

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

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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)
- ✓ 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)