

## Rilsamid® AESNO P302 TL

PA12-I

### Rilsamid® AESNO P302 TL (PA12-HIP, EHL, 22-004) resin

Rilsamid® AESNO P302 TL resin is a natural polyamide. This grade is plasticized and designed for tube extrusion.

Rilsamid® AESNO P302 TL resin falls into the PA12-HIPHL category according to DIN 73378.

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	13 / *	cm <sup>3</sup> /10min	ISO 1133
Temperature	235 / *	°C	-
Load	5 / *	kg	-

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	475 / 430	MPa	ISO 527-1/-2
Yield stress	28 / 24	MPa	ISO 527-1/-2
Yield strain	24 / 24	%	ISO 527-1/-2
Nominal strain at break	>50 / >50	%	ISO 527-1/-2
Charpy impact strength, +23°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, +23°C	46 <sup>[P]</sup> / N	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	4 / 6	kJ/m <sup>2</sup>	ISO 179/1eA

P: Partial Break

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 10°C/min	174 / *	°C	ISO 11357-1/-3
Coeff. of linear therm. expansion, parallel	150 / *	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	1E12 / 1E12	Ohm*m	IEC 60093
Surface resistivity	* / 7E13	Ohm	IEC 60093
Electric strength	41 / 41	kV/mm	IEC 60243-1
Comparative tracking index	* / 600	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	1.2 / *	%	Sim. to ISO 62

# Rilsamid® AESNO P302 TL

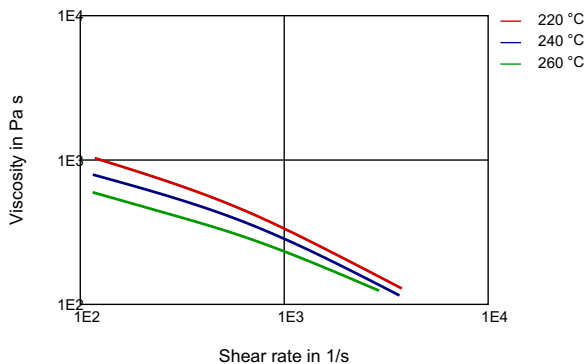
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Density **1030 / 1030** kg/m<sup>3</sup> ISO 1183

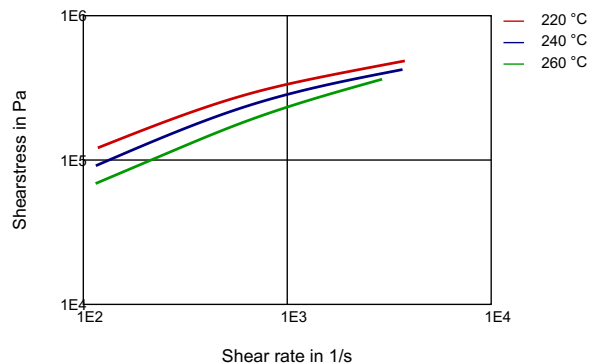
Test specimen production	Value	Unit	Test Standard
Injection Molding, melt temperature	<b>270</b>	°C	ISO 294
Injection Molding, mold temperature	<b>50</b>	°C	ISO 10724
Injection Molding, pressure at hold	<b>16</b>	MPa	ISO 294

## Diagrams

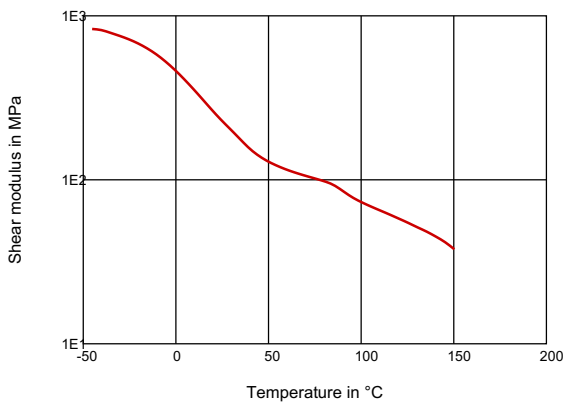
### Viscosity-shear rate



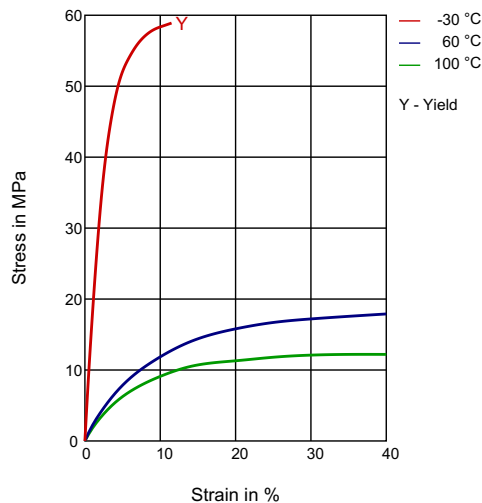
### Shearstress-shear rate



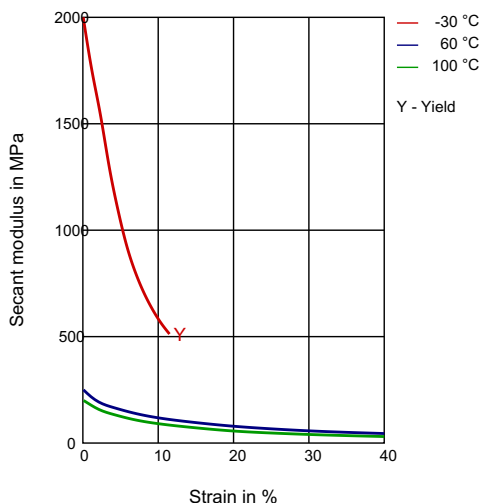
### Dynamic Shear modulus-temperature



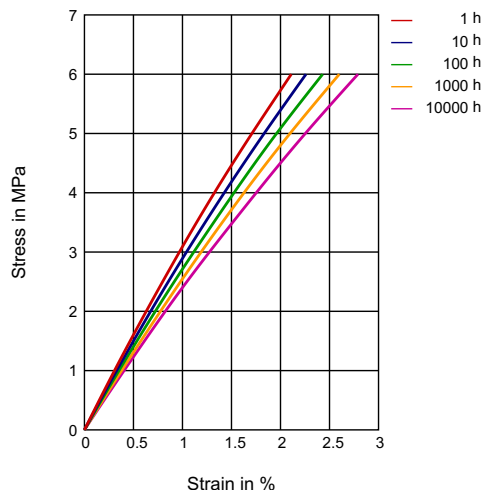
### Stress-strain



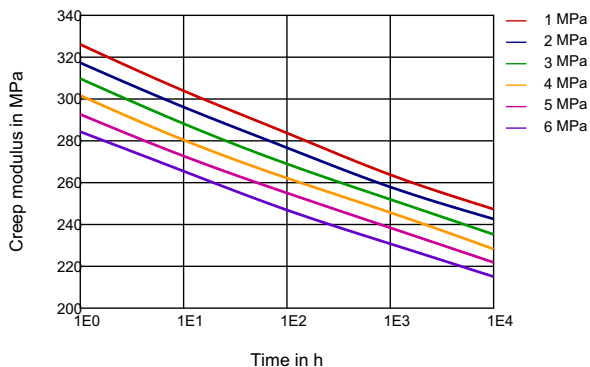
**Secant modulus-strain**



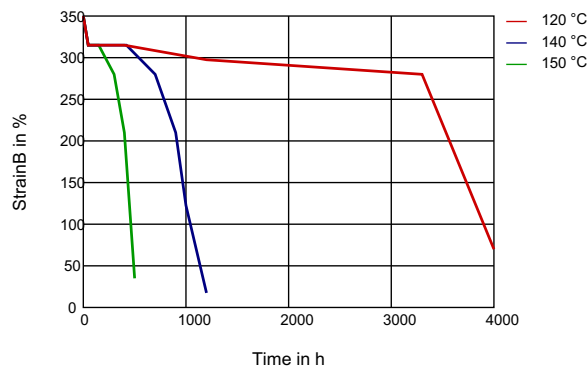
**Stress-strain (isochronous) 23°C**



**Creep modulus-time 23°C**



**LTHA-Strain at Break 2mm**



**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)

**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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- ✓ 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)

### 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)