Product Information

VESTAMID® L1940

MEDIUM-VISCOSITY PA12 RESIN FOR THE EXTRUSION AND INJECTION MOULDING

VESTAMID® L1940 NC is a heat-stabilized polyamide 12 compound for injection molding and for the extrusion wire insulation.

Properties of compounds based on PA12 vary little with changing humidity due to low moisture absorption. Parts made of this semi-crystalline material are characterized by exceptional impact strength, low coefficient of friction and good chemical resistance.

Pigmentation may affect values.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM
OR VISIT OUR PRODUCT AT WWW.VESTAMID.COM

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile Modulus	**1400 / 1030**	MPa	ISO 527
Tensile Strength	**43 / 39**	MPa	ISO 527
Yield stress	**43 / 39**	MPa	ISO 527
Yield strain	**4 / 14**	%	ISO 527
Stress at 50% strain	**33 / 30**	MPa	ISO 527
Stress at break	**49 / 55**	MPa	ISO 527
Nominal strain at break, εtB	**245 / 275**	%	ISO 527
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	**6 / 6**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**6 / 4.5**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-

EVONIK Leading Beyond Chemistry

Flexural modulus, 23°C	**1450 / 1050**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**49 / 33**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**7 / 8**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**178 / ***	°C	ISO 11357-1/-3
Glass transition temperature	**45 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**50 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**110 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**170 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**140 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**150 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**150 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**178**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Water absorption	**1.5 / ***	%	Sim. to ISO 62
Humidity absorption	**0.8 / ***	%	Sim. to ISO 62
Density	**1010 / -**	kg/m³	ISO 1183
Shore D hardness	**75[b] / -**	-	ISO 7619-1
Density	**1010**	kg/m³	ASTM D 792

b: 3 seconds

Burning Behav.	**dry / cond**	**Unit**	**Test Standard**
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**3.0 / ***	mm	-
YellowCard available	yes / *	-	-
Burning behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.8 / ***	mm	-

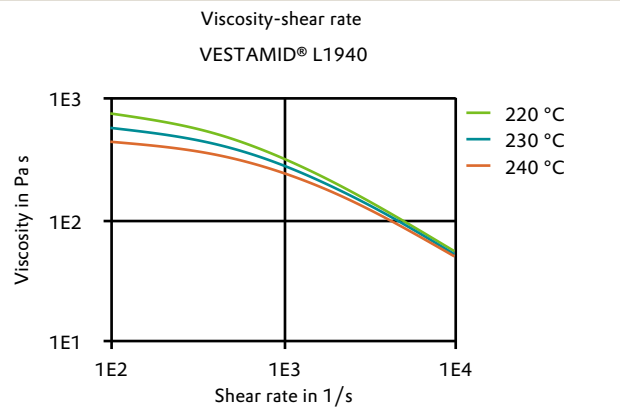
Yellow Card available	yes / *	-	-
Burning behav. at 1.5 mm nom. thickn.	**HB / ***	class	IEC 60695-11-10
Thickness tested	**1.5 / ***	mm	-
Yellow Card available	yes / *	-	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Relative permittivity, 100Hz	**3.8 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**2.5 / -**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**450 / -**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**310 / -**	E-4	IEC 62631-2-1
Volume resistivity, ρV	**>1E13 / 3.1E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, σC, circular electrodes	**8.1E12 / >1E15**	Ohm per square	IEC 62631-3-2
Electric strength, AC, S20/S20	**- / 35**	kV/mm	IEC 60243-1
Electric strength, AC, S20/P50	**27 / -**	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	**600 / -**	-	IEC 60112

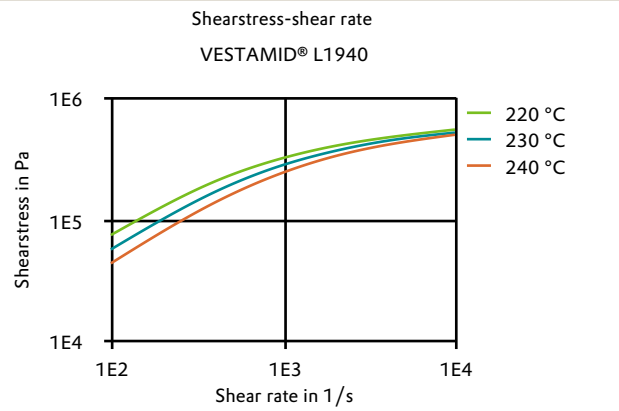
Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**110 / ***	cm^3/10min	ISO 1133
Temperature	**275 / ***	°C	-
Load	**5 / ***	kg	-
Molding shrinkage, parallel	**0.8 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1 / ***	%	ISO 294-4, 2577
Mold temperature	**60 / ***	°C	-
Melt temperature	**220 / ***	°C	-

Diagrams

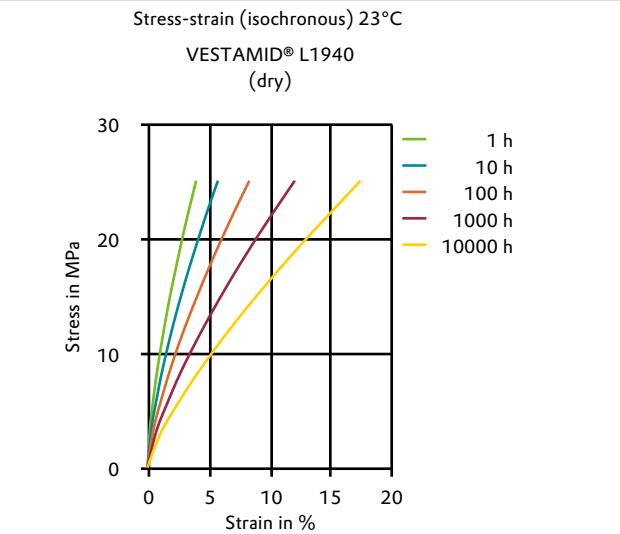
Viscosity-shear rate



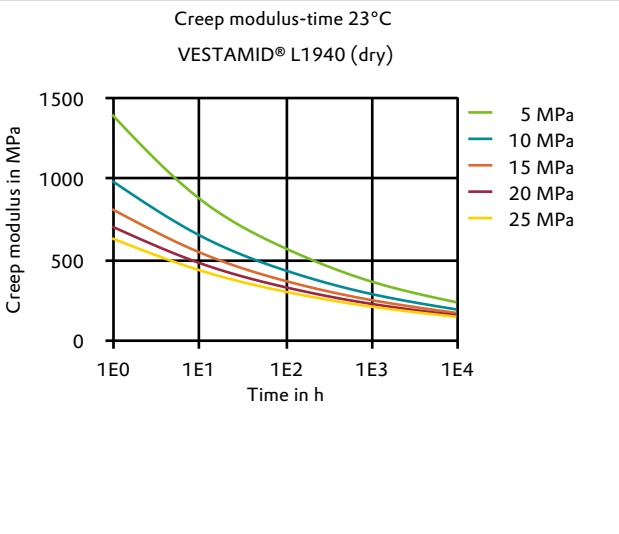
Shearstress-shear rate



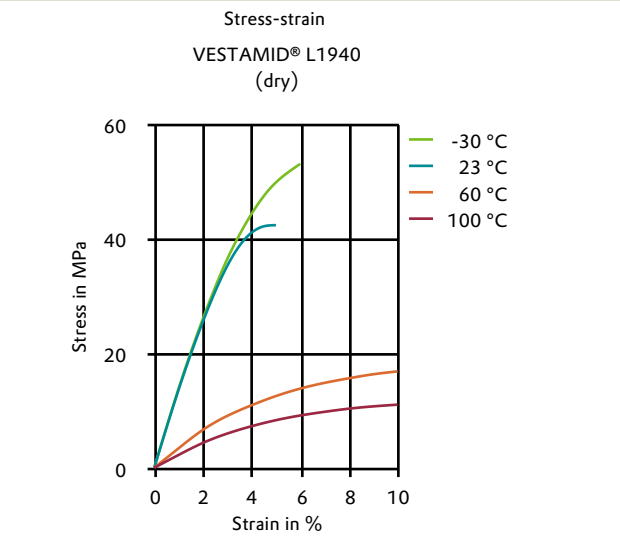
Stress-strain (isochronous) 23°C



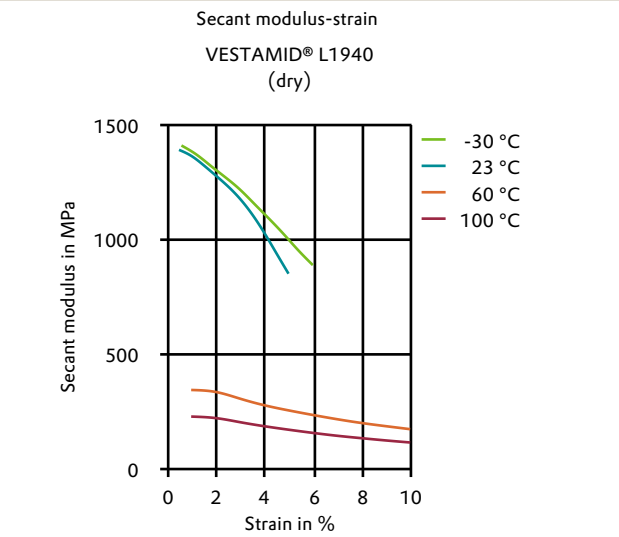
Creep modulus-time 23°C



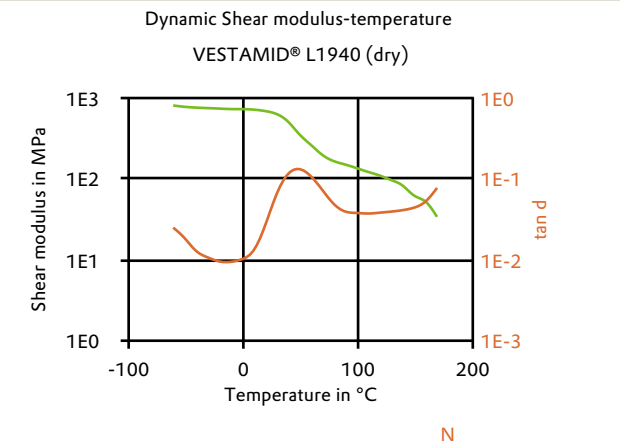
Stress-strain



Secant modulus-strain



Dynamic Shear modulus-temperature



Characteristics

Key Feature, Industrial Sector
Automotive, Electrical and Electronical, Instustry and Building Construction

Key Feature, Processing
Injection Molding, Extrusion

Applications
Fiber optic cable, IT and Telecommunication, Cable sheathing

Processing
Profile Extrusion

Special Characteristics
Heat-stabilized, Medium viscosity

Key Feature, Resistance to
Heat (Thermal Stability), Oil / Fuels

Key Feature, Electrical
Isolating

Key Feature, Certificate / Licence
Food contact, Automotive

Key Feature, Additives
Lubricants, Unfilled

Color
Natural Color

Additives
Heat stabilizer, Processing aids

Delivery form
Pellets, Granules

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% 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)
- ✔ 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 EN 590 (100°C)

Salt solutions

- ✔ Sodium Chloride 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 (120°C)
- ✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Density of melt	**860**	kg/m³	-
Thermal conductivity of melt	**0.2**	W/(m K)	-
Spec. heat capacity of melt	**3000**	J/(kg K)	-
Ejection temperature	**175**	°C	-

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