

Product Information

VESTAMID® L1940 NC

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.

Key Features

Industrial Sector

Automotive and Mobility, Sustainable, Industry and Engineering

Sustainability

Sustainable electricity

Processing

Injection molding, Extrusion

Delivery form

Pellets, Granules

Resistance to

Heat (thermal stability), Oil / fuels

Electrical

Insulating

Conformity

Food contact, Automotive

Additives

Lubricant, Unfilled

LCA-values

LCA name of certificate

dry

[VESTAMID® L Compound low](#)

Unit

-

Test Standard

ISO 14040, 14044

LCA certifier

[TÜV Rheinland](#)

-

ISO 14040, 14044

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	352 / *	°F	ISO 11357-1/-3
Glass transition temperature, DSC	113 / *	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	122 / *	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	230 / *	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	338 / *	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	284 / *	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	8.33E-5 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	8.33E-5 / *	in/in/°F	ISO 11359-1/-2
Melting Temperature	352	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1.01 / -	g/cm ³	ISO 1183
Water absorption	1.5 / *	%	Sim. to ISO 62
Humidity absorption	0.8 / *	%	Sim. to ISO 62
Shore D hardness	75 ^[b] / -	-	ISO 7619-1
Density	1.01	g/cm ³	ASTM D 792

b: 3 seconds

Burning Behav.	dry / cond	Unit	Test Standard
UL Yellow Card available	yes / *	-	-
Burning behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	0.0591 / *	in	-
Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.1181 / *	in	-
Burning behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0319 / *	in	-
Hot Wire Ignition (HWI)	4	PLC	IEC 60695-2-20

HWI - thickness tested	0.0319	in	-
Hot Wire Ignition (HWI)	3	PLC	IEC 60695-2-20
HWI - thickness tested	0.0591	in	-
Hot Wire Ignition (HWI)	2	PLC	IEC 60695-2-20
HWI - thickness tested	0.1181	in	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	>1E13 / 3.1E12	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	8.1E12 / >1E15	Ohm/sq	IEC 62631-3-2
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
Dielectric strength, AC, S20/S20, t. 1 mm	- / 889	kV/in	IEC 60243-1
Dielectric strength, AC, S20/P50	686 / -	V/mil	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	600 / -	-	IEC 60112
Assessment of the insulation group	I	-	DIN EN 60664-1
CTI, Performance Level Categories, PLC	0	class	ASTM D 3638

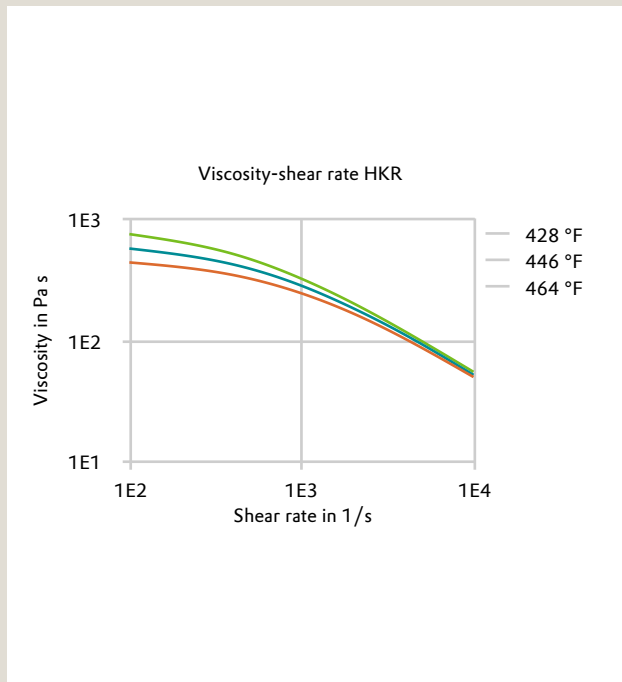
Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	110 / *	cm ³ /10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	0.8 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.1 / *	%	ISO 294-4, 2577
Mold temperature	140 / *	°F	-
Melt temperature	428 / *	°F	-

Test specimen production

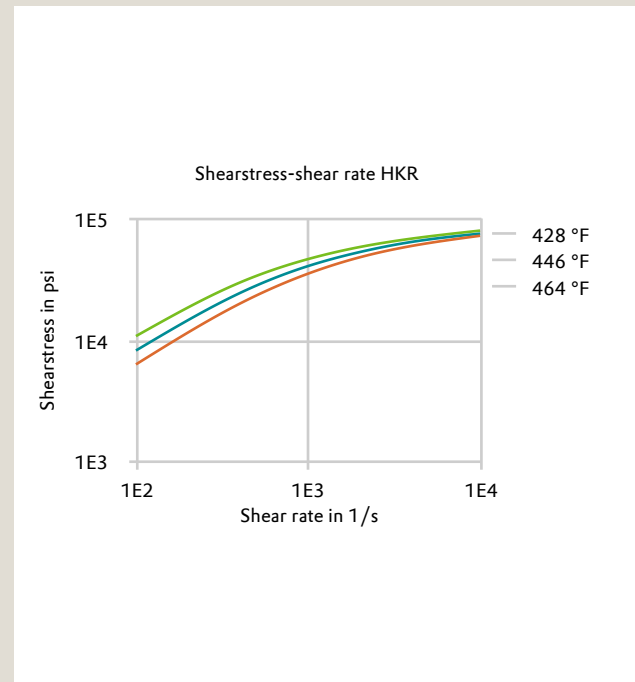
	dry	Unit	Test Standard
Injection Molding, melt temperature	428	°F	ISO 294
Injection Molding, mold temperature	176	°F	ISO 294
Injection Molding, injection velocity	7.87	in/s	ISO 294
Injection Molding, pressure at hold	10200	psi	ISO 294

Diagrams

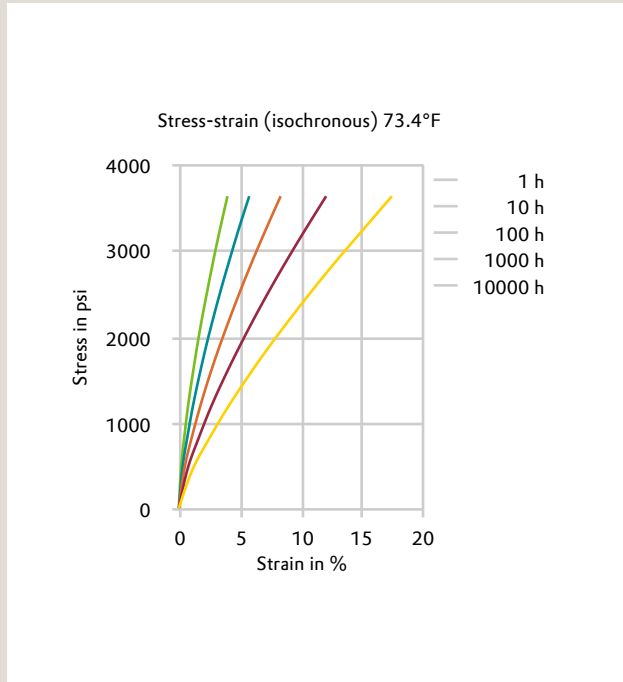
Viscosity-shear rate HKR



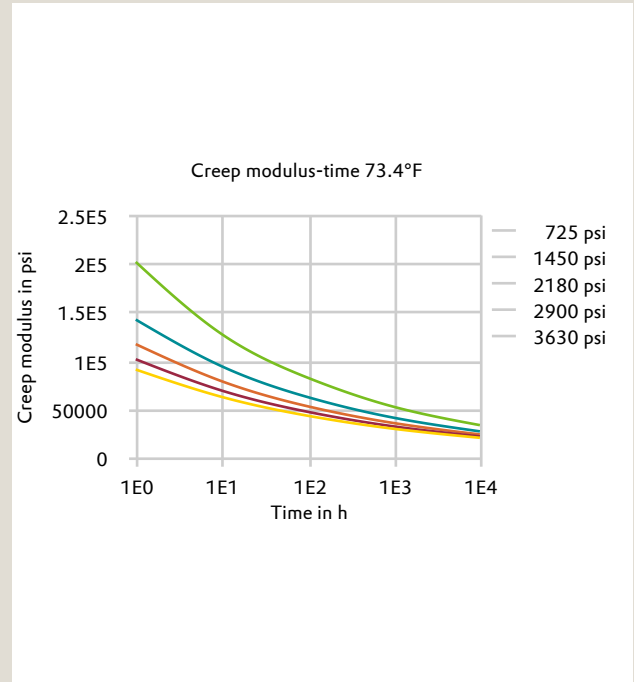
Shearstress-shear rate HKR



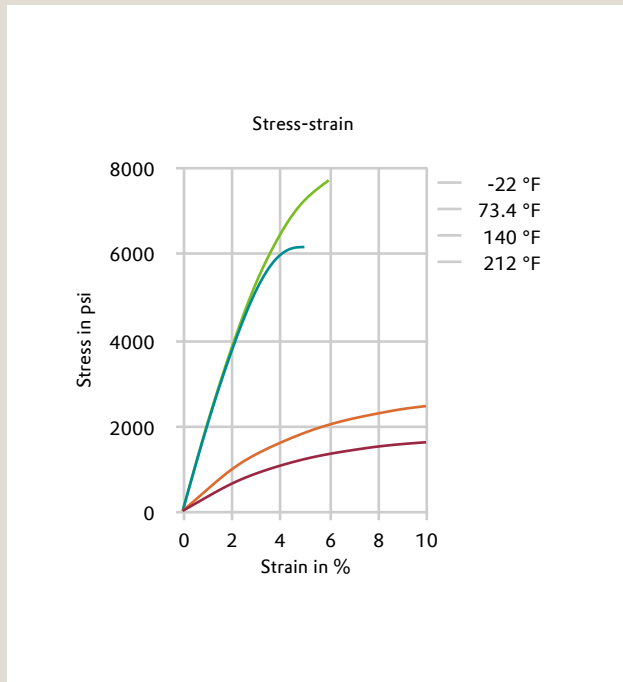
Stress-strain (isochronous) 73°F



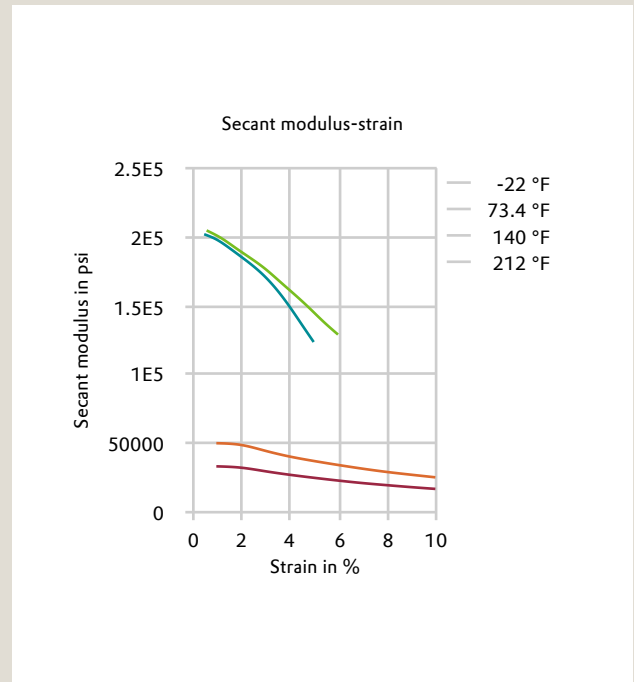
Creep modulus-time 73°F



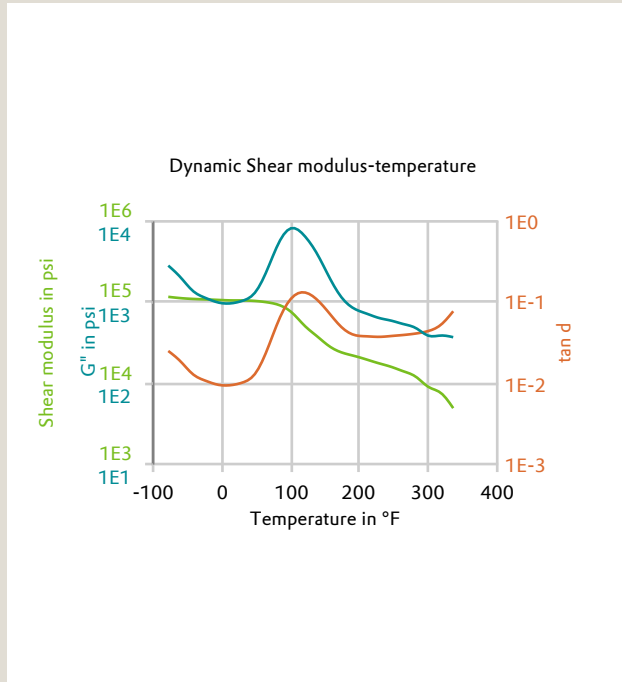
Stress-strain



Secant modulus-strain



Dynamic Shear modulus-temperature



Characteristics

Applications

Electrical and Electronical, Fiber optic cable, IT and telecommunication, Cable sheathing

Processing

Profile extrusion

Special Characteristics

High heat resistant, Medium viscosity

Color

Natural color

Additives

Heat stabilizer, Processing aids

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	53.7	lb/ft ³	-
Thermal conductivity of melt	1.39	BTU in/(hr ft ² °F)-	-
Spec. heat capacity of melt	1.13	BTU/(lb·F)	-
Ejection temperature	347	°F	-
Min. mold temperature	86	°F	-
Max. mold temperature	212	°F	-
Min. melt temperature	392	°F	-
Max. melt temperature	464	°F	-