VESTAMID®

Product Information

VESTAMID® L1670 NC

LOW VISCOSITY, HEAT AND LIGHT STABILIZED POLYAMIDE 12 COMPOUND

VESTAMID® L1670 NC has been developed especially for the extrusion of thin wire insulations and cable jacketings.

VESTAMID® L1670 NC coatings exhibit a low coefficient of friction which facilitates the laying of cable.

Switchboard wiring isolated with VESTAMID® L1670 NC can be soldered with no worry of interference by the plastic resin. The wiring can be soldered without the need to strip the isolating layer.

Jacketing of VESTAMID® L1670 NC protects buried cables from attack by termites.

This partially crystalline polyamide 12 bases compounds have a very low water absorption. Therefore products produced from VESTAMID® L1670 NC maintain their dimensions in environments with varying humidity levels, while maintaining a high tenacity, a low coefficient of friction and good chemical resistance. VESTAMID® L1670 NC is supplied as cylindrical granules, ready for processing in moisture-proof packaging.

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
Sustainable, Industry and Engineering

Sustainability
Sustainable electricity

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Additives
Lubricant, Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L Compound low	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**25.7**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**6.1**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**6.1**	kg CO_2 eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	**0.1**	Annual crop eq. y	ISO 14040, 14044
GWP savings as compared to 2023 reference	**-2.5**	kg CO_2 eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**203000 / 158000**	psi	ISO 527
Tensile strength	**6380 / 5800**	psi	ISO 527
Yield stress	**6380 / 5800**	psi	ISO 527
Yield strain	**5 / 13**	%	ISO 527
Stress at 50% strain	**4500 / 4350**	psi	ISO 527
Stress at break	**7250 / 8700**	psi	ISO 527
Nominal strain at break, tB	**>50 / >50**	%	ISO 527
Charpy impact strength, +23°C	**N / N**	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**N / N**	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, +23°C	**1.9 / 1.9**	ftlb/in²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**2.38 / 1.9**	ftlb/in²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**196000 / 160000**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**6530 / 5080**	psi	ISO 178
Flexural strength, 23°C	**8270 / 6960**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**7 / 8**	%	ISO 178

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	**248 / ***	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**349 / ***	°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/cm³	ISO 1183
Water absorption	**1.4 / ***	%	Sim. to ISO 62
Humidity absorption	**0.7 / ***	%	Sim. to ISO 62
Shore D hardness	**75**[b] **/ -**	-	ISO 7619-1
Density	**1.01**	g/cm³	ASTM D 792

b: 3 seconds

Burning Behav.	dry / cond	Unit	Test Standard
Burning behav. at 1.5 mm nom. thickn.	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.0630 / ***	in	-
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.1260 / ***	in	-
Glow Wire Flammability Index (GWFI)	**1760**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.0394**	in	-
Glow Wire Flammability Index (GWFI)	**1760**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.0787**	in	-

Glow Wire Ignition Temperature (GWIT)	**1560**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.0394**	in	-
Glow Wire Ignition Temperature (GWIT)	**1560**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.0787**	in	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**>1E13 / 3.2E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**8.5E12 / >1E15**	Ohm/sq	IEC 62631-3-2
Relative permittivity, 50Hz	**3.9 / -**	-	IEC 62631-2-1
Relative permittivity, 100Hz	**3.8 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3 / -**	-	IEC 62631-2-1
Dissipation factor, 1MHz	**271 / -**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**- / 838**	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

Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**84 / ***	cm^3/10min	ISO 1133
Temperature	**230 / ***	°C	-
Load	**2.16 / ***	kg	-
Molding shrinkage, parallel	**0.9 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1 / ***	%	ISO 294-4, 2577
Mold temperature	**140 / ***	°F	-
Melt temperature	**392 / ***	°F	-

Polymer analytics	**dry / cond**	**Unit**	**Test Standard**
Viscosity number	**3320 / ***	in^3/lb	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**392**	°F	ISO 294
Injection Molding, mold temperature	**140**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294
Injection Molding, pressure at hold	**10200**	psi	ISO 294

Characteristics

Applications
Electrical and Electronical, Cable sheathing

Color
Natural color

Processing
Profile extrusion, Wire/Cable extrusion

Additives
Light stabilizer, Heat stabilizer, Processing aids

Special Characteristics
Light-stabilized, U.V. stabilized, High heat resistant

Chemical Resistance
General chemical resistance

Features
Low coefficient of friction, Termite and rodent resistance

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
Min. mold temperature	**86**	°F	-
Max. mold temperature	**212**	°F	-

Min. melt temperature	**356**	°F	-
Max. melt temperature	**428**	°F	-

Processing Recommendation Extrusion	dry	Unit	Test Standard

Type of extrusion

Type of extrusion	**film**	-	-

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Type of extrusion	**film**	-	-