

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

Delivery form

Pellets, Granules

Sustainability

Sustainable electricity

Additives

Lubricant, Unfilled

Processing

Injection molding, Extrusion

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	1400 / 1090	MPa	ISO 527
Tensile strength	44 / 40	MPa	ISO 527
Yield stress	44 / 40	MPa	ISO 527
Yield strain	5 / 13	%	ISO 527
Stress at 50% strain	31 / 30	MPa	ISO 527
Stress at break	50 / 60	MPa	ISO 527
Nominal strain at break, tB	>50 / >50	%	ISO 527
Charpy impact strength, +23°C	N / N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	4 / 4	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Charpy notched impact strength, -30°C	5 / 4	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Flexural modulus, 23°C	1350 / 1100	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	45 / 35	MPa	ISO 178
Flexural strength, 23°C	57 / 48	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, DSC	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	120 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	176 / *	°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
Density	1010 / -	kg/m ³	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	1010	kg/m ³	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	1.6 / *	mm	-
Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	3.2 / *	mm	-
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested	1	mm	-
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
GWFI - thickness tested	2	mm	-

Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13
GWIT - thickness tested	1	mm	-
Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13
GWIT - thickness tested	2	mm	-

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 per square	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	- / 33	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P50	27 / -	kV/mm	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	60 / *	°C	-
Melt temperature	200 / *	°C	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	120 / *	cm ³ /g	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	200	°C	ISO 294
Injection Molding, mold temperature	60	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294
Injection Molding, pressure at hold	70	MPa	ISO 294

Characteristics

Applications

Electrical and Electronical, Cable sheathing

Processing

Profile extrusion, Wire/Cable extrusion

Special Characteristics

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

Features

Low coefficient of friction, Termite and rodent resistance

Color

Natural color

Additives

Light stabilizer, Heat stabilizer, Processing aids

Chemical Resistance

General chemical 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	30	°C	-
Max. mold temperature	100	°C	-

VESTAMID®

Min. melt temperature	180	°C	-
Max. melt temperature	220	°C	-

Processing Recommendation Extrusion	dry	Unit	Test Standard
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Type of extrusion

Type of extrusion	film	-	-
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Type of extrusion

Type of extrusion	film	-	-
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