Product Information

VESTAMID® L1670

LOW VISCOSITY, HEAT AND LIGHT STABILIZED POLYAMIDE 12 COMPOUND

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

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

Switchboard wiring isolated with VESTAMID® L1670 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 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 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 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.

For information about processing of VESTAMID®, please follow the general commendations about "Processing of VESTAMID® compounds".

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

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

EVONIK Leading Beyond Chemistry

LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**26.1**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**5.9**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**5.8**	kg CO_2 eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	**0.3**	Annual crop eq. y	ISO 14040, 14044
GWP savings incl. bio. C. as compared to classical production	**2.7**	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, εtB	**>50 / >50**	%	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	**4 / 4**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**5 / 4**	kJ/m²	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	**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/m³	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/m³	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, ρV	**>1E13 / 3.2E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, σC, 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	**60 / ***	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	**210**	°C	ISO 294

Injection Molding, mold temperature	**80**	°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	-
Min. melt temperature	**180**	°C	-
Max. melt temperature	**220**	°C	-

Processing Recommendation Extrusion	dry	Unit	Test Standard
Type of extrusion			
Type of extrusion	**film**	-	-
Type of extrusion			
Type of extrusion	**film**	-	-

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