Product Information

VESTAMID® LX9102 BK

CONDUCTIVE NYLON 12 FOR USE IN MULTILAYER TUBING (INTERNAL)

VESTAMID® LX9102 BK is a specially modified conductive nylon 12 for use in conductive multilayer tubing. VESTAMID® LX9102 BK can be used e.g., in multilayer tubing MLT 140.2 and MLT 2040.2.

Compared to common conductive resins VESTAMID® LX9102 BK is characterised by a lower melt viscosity and thus excellent extrudability also in thin layers. Use of VESTAMID® LX9102 BK leads to tubing with excellent quality of the inner surface.

Multilayer tubing with an innermost layer made of VESTAMID® LX9102 BK complies with the American automotive manufactures' requirements to avoid electrostatic charging generated by fuel flow.
VESTAMID® LX9102 BK is supplied as cylindrical granules, ready for processing in moisture-proof bags.

Please notice that material data measured on test specimens do not provide sufficient information about the performance of the multilayer tubing system.

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

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**600 / 580**	MPa	ISO 527
Tensile strength	**37 / -**	MPa	ISO 527
Stress at 50% strain	**33 / 30**	MPa	ISO 527
Stress at break	**37 / 37**	MPa	ISO 527
Nominal strain at break, εtB	**130 / 165**	%	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

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Charpy notched impact strength, +23°C	**90 / 107**	kJ/m²	ISO 179/1eA
Type of failure	**P / P**	-	-
Charpy notched impact strength, -30°C	**5 / 5**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**620 / 590**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**19 / 18**	MPa	ISO 178
Flexural strength, 23°C	**27 / 30**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**9 / 11**	%	ISO 178
Flexural stress at break, 23°C	**N / N**	MPa	ISO 178
Flexural strain at break, 23°C	**N / N**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**172 / ***	°C	ISO 11357-1/-3
Glass transition temperature	**43 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**55 / ***	°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	**169 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**136 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**179 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**165 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**172**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1120 / -**	kg/m³	ISO 1183
Water absorption	**1.5 / ***	%	Sim. to ISO 62
Humidity absorption	**0.5 / ***	%	Sim. to ISO 62
Density	**1120**	kg/m³	ASTM D 792

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, ρV	**800 / 680**	Ohm*m	IEC 62631-3-1
Volume resistivity on bar, ρV	**1.00E3 / -**	Ohm*m	Sim. to IEC 62631-3-1
Surface resistivity, σC, circular electrodes	**4.6E4 / 3.9E4**	Ohm per square	IEC 62631-3-2

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**35 / ***	cm^3/10min	ISO 1133
Temperature	**240 / ***	°C	-
Load	**21.6 / ***	kg	-
Molding shrinkage, parallel	**1.5 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.5 / ***	%	ISO 294-4, 2577
Mold temperature	**80 / ***	°C	-
Melt temperature	**230 / ***	°C	-

Pipes Properties	Value	Unit	Test Standard
Insulation resistance on tube	**2000**	Ohm per square	SAE J2260

Characteristics

Key Features, Industrial Sector
Automotive and Mobility

Key Features, Processing
Extrusion

Key Features, Delivery form
Pellets, Granules

Key Features, Resistance to
Heat (thermal stability), UV / light / weathering, Oil / fuels

Key Features, Electrical
Anti-static, Conductive

Key Features, Conformity
Automotive

Processing
Profile extrusion, Pipe/Tube extrusion, Coextrusion (MLT)

Color
Black

Additives
Plasticizer, Light stabilizer, Conductive agent, 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

- ✔ 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)
✔	Water (23°C)

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