Product Information

VESTAMID® L2140 BK 9.7504

HIGH VISCOSITY, HEAT AND LIGHT STABILIZED PA12 COMPOUND

VESTAMID® L2140 BK 9.7504 is a heat- and light- stabilized polyamide 12 compound for the extrusion of tubing (e.g. fuel lines) and semi-finished products. Tubing according to DIN 73 378, Type: PA 12-HL.

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.

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

The values presented are typical or average values, they do not constitute a specification.

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

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), UV / light / weathering, Oil / fuels

Electrical
Insulating

Conformity
Automotive

Additives
Lubricant, Unfilled

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	**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	**1550 / 1300**	MPa	ISO 527
Tensile strength	**45 / -**	MPa	ISO 527
Yield stress	**45 / 41**	MPa	ISO 527
Yield strain	**4 / 13**	%	ISO 527
Stress at 50% strain	**39 / ***	MPa	ISO 527
Stress at break	**50 / ***	MPa	ISO 527
Nominal strain at break, tB	**160 / >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	**16 / 12**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**9 / 10**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**1570 / 1200**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**50 / 38**	MPa	ISO 178
Flexural strength, 23°C	**62 / 50**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**6.5 / 8**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**176 / ***	°C	ISO 11357-1/-3

Glass transition temperature, DSC	**40 / ***	°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	**110 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**178 / ***	°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	**140 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**140 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**176**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1010 / 1010**	kg/m³	ISO 1183
Water absorption	**1.5 / ***	%	Sim. to ISO 62
Humidity absorption	**0.7 / ***	%	Sim. to ISO 62
Density	**1010**	kg/m³	ASTM D 792

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	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**1E13 / 3E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, E	*** / 1E15**	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	**3.7 / 4.8**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3 / 3.3**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**450 / 700**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**260 / 500**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**26 / 36**	kV/mm	IEC 60243-1

CTI, test solution A, 50 drops value	*** / 600**	-	IEC 60112

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**6 / ***	cm^3/10min	ISO 1133
Temperature	**230 / ***	°C	-
Load	**5 / ***	kg	-
Molding shrinkage, parallel	**0.6 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.3 / ***	%	ISO 294-4, 2577
Mold temperature	**60 / ***	°C	-
Melt temperature	**240 / ***	°C	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**240**	°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, Tube and hose

Features
Low coefficient of friction

Processing
Profile extrusion

Color
Black

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

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
Density of melt	**860**	kg/m³	-
Thermal conductivity of melt	**0.2**	W/(m K)	-
Spec. heat capacity of melt	**3000**	J/(kg K)	-
Ejection temperature	**170**	°C	-
Min. mold temperature	**30**	°C	-
Max. mold temperature	**100**	°C	-
Min. melt temperature	**220**	°C	-
Max. melt temperature	**260**	°C	-

This information and all technical and other advice are based on Evonik's present knowledge and experience. However, Evonik assumes no liability for such information or advice, including the extent to which such information or advice may relate to third party intellectual property rights. Evonik reserves the right to make any changes to information or advice at any time, without prior or subsequent notice. Evonik disclaims all representations and warranties, whether express or implied, and shall have no liability for, merchantability of the product or its fitness for a particular purpose (even if Evonik is aware of such purpose), or otherwise. EVONIK SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. It is the customer's sole responsibility to arrange for inspection and testing of all products by qualified experts. Reference to trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used.

® is a registered trademark of Evonik Industries AG or one of its subsidiaries

Evonik Operations GmbH
Smart Materials
High Performance Polymers
45772 Marl / Germany
Tel: +49 2365 49-9878
evonik-hp@evonik.com

www.plastics-database.com