

VESTAMID®

Product Information

VESTAMID® L-R3-MHI BK

PLASTICIZED, IMPACT RESISTANCE POLYAMIDE 12 COMPOUND FOR INJECTION MOLDING



VESTAMID® L-R3-MHI BK is a medium viscosity heat and light-stabilized PA 12 compound for the injection molding process. Furthermore it is antistatic and contains a processing aid for a fast and even form filling.

VESTAMID® L-R3-MHI BK offers a good impact resistance at low temperatures.

VESTAMID® L-R3-MHI BK is supplied as cylindrical granules, ready for processing, in moisture-proof bags. The processing temperature during the extrusion process should be within a range of 230°C to 270°C.

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

Delivery form

Pellets, Granules

Resistance to

Heat (thermal stability), UV / light / weathering

Electrical

Anti-static, Conductive

Additives

Lubricant

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L Compound high	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	23.9	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	5.8	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)	0.1	Annual crop eq. y	ISO 14040, 14044
GWP savings as compared to 2023 reference	-2.1	kg CO ₂ eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	1640 / -	MPa	ISO 527
Tensile strength	38 / -	MPa	ISO 527
Yield stress	38 / -	MPa	ISO 527
Yield strain	5 / -	%	ISO 527
Stress at break	35 / -	MPa	ISO 527
Nominal strain at break, tB	30 / -	%	ISO 527
Charpy impact strength, +23°C	N / -	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N / -	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	44 / -	kJ/m ²	ISO 179/1eA
Type of failure	P / -	-	-
Charpy notched impact strength, -30°C	15 / -	kJ/m ²	ISO 179/1eA
Type of failure	C / -	-	-
Flexural modulus, 23°C	1530 / -	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	44 / -	MPa	ISO 178
Flexural strength, 23°C	52 / -	MPa	ISO 178
Flexural strain at flexural strength, 23°C	7 / -	%	ISO 178
Flexural stress at break, 23°C	N / -	MPa	ISO 178

Flexural strain at break, 23°C	N / -	%	ISO 178
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Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	178 / *	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	50 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	130 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	175 / *	°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	180 / *	E-6/K	ISO 11359-1/-2
Melting Temperature	178	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1100 / -	kg/m ³	ISO 1183
Water absorption	1.5 / *	%	Sim. to ISO 62
Humidity absorption	0.8 / *	%	Sim. to ISO 62
Density	1100	kg/m ³	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	-

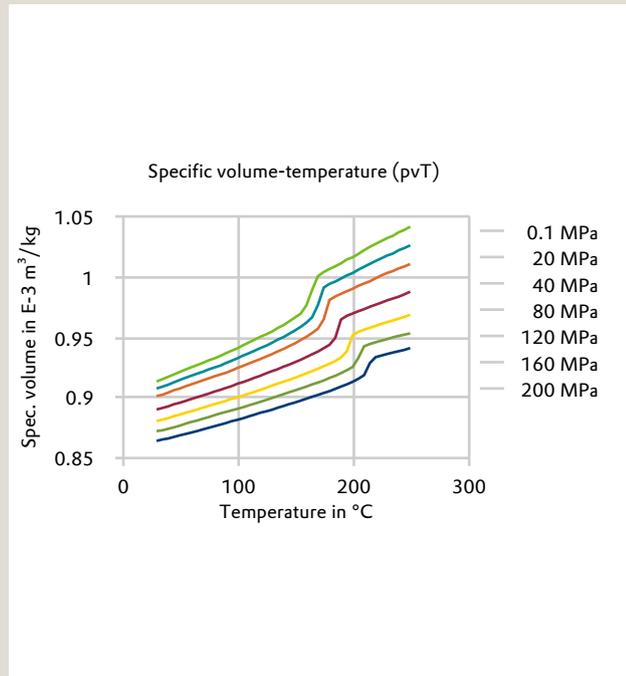
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	6 / -	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	4.0E2 / -	Ohm per square	IEC 62631-3-2
Surface resistance, RSD	1.61E2 / -	Ohm	IEC 62631-3-2
Surface resistivity, D	1.61E3 / -	Ohm per square	IEC 62631-3-2
Test specimen	UL-Stab /	-	-

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	10 / *	cm ³ /10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	1.4 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6 / *	%	ISO 294-4, 2577
Mold temperature	80 / *	°C	-
Melt temperature	240 / *	°C	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	250	°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

Diagrams

Specific volume-temperature (pvT)



Characteristics

Applications

Electrical and Electronical, Encapsulation

Color

Black

Special Characteristics

High impact strength, Light-stabilized, High heat resistant, Medium viscosity

Additives

Light stabilizer, 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

- ✓ 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	940	kg/m ³	-
Thermal conductivity of melt	0.16	W/(m K)	-
Spec. heat capacity of melt	2550	J/(kg K)	-
Ejection temperature	180	°C	-
Min. mold temperature	30	°C	-
Max. mold temperature	100	°C	-
Min. melt temperature	230	°C	-
Max. melt temperature	270	°C	-