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	**238000 / -**	psi	ISO 527
Tensile strength	**5510 / -**	psi	ISO 527
Yield stress	**5510 / -**	psi	ISO 527
Yield strain	**5 / -**	%	ISO 527
Stress at break	**5080 / -**	psi	ISO 527
Nominal strain at break, tB	**30 / -**	%	ISO 527
Charpy impact strength, +23°C	**N / -**	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, +23°C	**20.9 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**P / -**	-	-
Charpy notched impact strength, -30°C	**7.14 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**221000 / -**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**6380 / -**	psi	ISO 178
Flexural strength, 23°C	**7540 / -**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**7 / -**	%	ISO 178
Flexural stress at break, 23°C	**N / -**	psi	ISO 178

Flexural strain at break, 23°C	**N / -**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**352 / ***	°F	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	**122 / ***	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**266 / ***	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**347 / ***	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**284 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**0.0001 / ***	in/in/°F	ISO 11359-1/-2
Melting Temperature	**352**	°F	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1.1 / -**	g/cm³	ISO 1183
Water absorption	**1.5 / ***	%	Sim. to ISO 62
Humidity absorption	**0.8 / ***	%	Sim. to ISO 62
Density	**1.1**	g/cm³	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	**0.0630 / ***	in	-
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.1260 / ***	in	-

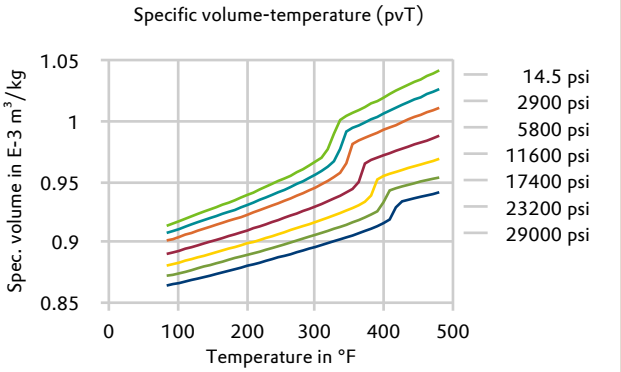
Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**6 / -**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**4.0E2 / -**	Ohm/sq	IEC 62631-3-2
Surface resistance, RSD	**1.61E2 / -**	Ohm	IEC 62631-3-2
Surface resistivity, D	**1.61E3 / -**	Ohm/sq	IEC 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	**176 / ***	°F	-
Melt temperature	**464 / ***	°F	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**482**	°F	ISO 294
Injection Molding, mold temperature	**176**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294
Injection Molding, pressure at hold	**10200**	psi	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	**58.7**	lb/ft^3	-
Thermal conductivity of melt	**1.11**	BTU in/(hr ft^2 °F)	-
Spec. heat capacity of melt	**0.958**	BTU/(lb·F)	-
Ejection temperature	**356**	°F	-
Min. mold temperature	**86**	°F	-
Max. mold temperature	**212**	°F	-
Min. melt temperature	**446**	°F	-
Max. melt temperature	**518**	°F	-