Product Information

VESTAMID® L-R3-EI BK

HIGH VISCOSITY, ELECTRICALLY CONDUCTIVE PA12 RESIN WITH HIGHER IMPACT RESISTANCE

VESTAMID® L-R3-EI BK
Resin: ISO 1874-PA12, HI, EHZ, 22-010

Former Designation: VESTAMID® X3693 BK (t)

High viscosity, electrically conductive PA12 resin with higher impact resistance. The resistance values of the finished parts are dependent on the processing conditions.
Application examples: Parts for explosion proof machines and rooms

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

Delivery form
Pellets, Granules

Sustainability
Sustainable electricity

Electrical
Anti-static, Conductive

Processing
Injection molding, Extrusion

Additives
Release agent

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	**232000 / -**	psi	ISO 527
Tensile strength	**6090 / -**	psi	ISO 527
Yield stress	**6090 / -**	psi	ISO 527
Yield strain	**9 / -**	%	ISO 527
Stress at break	**5510 / -**	psi	ISO 527
Nominal strain at break, tB	**26 / -**	%	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	**4.76 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**4.28 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**223000 / -**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**7110 / -**	psi	ISO 178
Flexural strength, 23°C	**8560 / -**	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	**140 / ***	°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	**351 / ***	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**295 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**8.33E-5 / ***	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**8.33E-5 / ***	in/in/°F	ISO 11359-1/-2
Melting Temperature	**352**	°F	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1.06 / -**	g/cm³	ISO 1183
Water absorption	**1.2 / ***	%	Sim. to ISO 62
Humidity absorption	**0.5 / ***	%	Sim. to ISO 62
Density	**1.06**	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	-
Thickness tested	**0.1260 / ***	in	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**1.5 / -**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**2.0E2 / -**	Ohm/sq	IEC 62631-3-2
Surface resistance, RSD	**1.00E2 / -**	Ohm	IEC 62631-3-2
Surface resistivity, D	**1.00E3 / -**	Ohm/sq	IEC 62631-3-2
Test specimen	**UL-Stab /**	-	-

Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**150 / ***	cm³/10min	ISO 1133
Temperature	**275 / ***	°C	-

Load	**21.6 / ***	kg	-
Molding shrinkage, parallel	**1.6 / ***	%	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

Characteristics

Applications
Encapsulation, IT and telecommunication

Processing
Profile extrusion

Special Characteristics
High impact strength, Light-stabilized, High heat resistant, High viscosity

Color
Black

Additives
Release agent, 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

- ✔ 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	**56.2**	lb/ft^3	-
Thermal conductivity of melt	**1.25**	BTU in/(hr ft^2 °F)	-
Spec. heat capacity of melt	**1**	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	-