Product Information

VESTAMID® L-R2-GF25 BK

GLASSFIBER REINFORCED (25%), ELECTRICALLY CONDUCTIVE PA12 RESIN

VESTAMID® L-R2-GF25 BK glass fiber-reinforced, electrically conductive polyamide 12 for injection molding process, especially for molded parts for explosion-protected equipment and systems.

The parts based on PA 12 absorb only small amounts of water and components made of this material therefore show excellent dimensional stability under changing ambient humidity. The resistance values of the finished parts are dependent on the processing conditions.

VESTAMID® L-R2-GF25 BK is supplied as cylindrical granules ready for processing in moisture-proof polyethylene containers.

The use of colorants may change property 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

Electrical
Conductive

Additives
Glass fibers

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L GF medium	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044

Blue water consumption	**23.6**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**5.1**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**5.1**	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	**-2.3**	kg CO_2 eq./kg	ISO 14040, 14044

Mechanical properties ISO	**dry / cond**	**Unit**	**Test Standard**
Tensile modulus	**6800 / -**	MPa	ISO 527
Tensile strength	**120 / -**	MPa	ISO 527
Stress at break	**120 / -**	MPa	ISO 527
Nominal strain at break, tB	**4.6 / -**	%	ISO 527
Charpy impact strength, +23°C	**75 / -**	kJ/m²	ISO 179/1eU
Type of failure	**C / -**	-	-
Charpy impact strength, -30°C	**70 / -**	kJ/m²	ISO 179/1eU
Type of failure	**C / -**	-	-
Charpy notched impact strength, +23°C	**10 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**11 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**6050 / -**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**175 / -**	MPa	ISO 178
Flexural strength, 23°C	**195 / -**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**5 / -**	%	ISO 178
Flexural stress at break, 23°C	**194 / -**	MPa	ISO 178
Flexural strain at break, 23°C	**5 / -**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**178 / ***	°C	ISO 11357-1/-3

Temp. of deflection under load A, 1.80 MPa	**170 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**175 / ***	°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	**170 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**100 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**80 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**178**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1270 / -**	kg/m³	ISO 1183
Water absorption	**1.2 / ***	%	Sim. to ISO 62
Humidity absorption	**0.5 / ***	%	Sim. to ISO 62
Density	**1270**	kg/m³	ASTM D 792

Burning Behav.	**dry / cond**	**Unit**	**Test Standard**
UL Yellow Card available	yes / *	-	-
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	**3.0 / ***	mm	-
Burning behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.8 / ***	mm	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**21 / -**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**1.3E3 / -**	Ohm per square	IEC 62631-3-2
Surface resistance, RSD	**1.00E2 / -**	Ohm	IEC 62631-3-2
Surface resistivity, D	**1.00E3 / -**	Ohm per square	IEC 62631-3-2
Test specimen	**UL-Stab /**	-	-

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**80 / ***	cm^3/10min	ISO 1133
Temperature	**275 / ***	°C	-
Load	**21.6 / ***	kg	-
Molding shrinkage, parallel	**0.3 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.8 / ***	%	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

Characteristics

Special Characteristics
Light-stabilized, High heat resistant

Color
Black

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	**1020**	kg/m³	-
Thermal conductivity of melt	**0.24**	W/(m K)	-
Spec. heat capacity of melt	**2020**	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	-