VESTAMID®

Product Information

VESTAMID® DX9321 BK E70164

MOLDING COMPOUND BASED ON NYLON 612 SPECIALLY SUITABLE FOR PLASTIC AND RUBBER COMPOSITES

VESTAMID® DX9321 BK E70164 is a heat-stabilized, glass fiber-reinforced and impact-modified PA 612 compound.

The material contains about 20 % glass fibers, an ageing protective agent and processing aid for a fast and even form filling. VESTAMID® DX9321 BK E70164 is especially suitable for the production of plastic and rubber composites.

Parts of VESTAMID® DX9321 BK E70164 can be directly bonded to rubber,e.g., XNBR, HNBR, AEM or FPM, without using any adhesives or adhesion promoters ("direct-bonding to rubber").

Because of its semi-crystallinemorphology VESTAMID® DX9321 BK E70164 provides an excellent chemical resistance. e.g., against greases, oils, fuels and hydraulic fluids.

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
Automotive and Mobility, Sustainable

Sustainability
Sustainable electricity

Processing
Injection molding

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), UV / light / weathering, Oil / fuels

Electrical
Insulating

Conformity
Automotive

Additives
Glass fibers, Release agent

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® D GF	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**20.1**	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	**-2.0**	kg CO_2 eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**5700 / 4700**	MPa	ISO 527
Tensile strength	**115 / -**	MPa	ISO 527
Yield stress	*** / 90**	MPa	ISO 527
Yield strain	*** / 5**	%	ISO 527
Stress at break	**115 / 86**	MPa	ISO 527
Strain at break, B	**4.6 / ***	%	ISO 527
Nominal strain at break, tB	*** / 10**	%	ISO 527
Charpy impact strength, +23°C	**93 / 93**	kJ/m²	ISO 179/1eU
Type of failure	**C / C**	-	-
Charpy impact strength, -30°C	**106 / 102**	kJ/m²	ISO 179/1eU
Type of failure	**C / C**	-	-
Charpy notched impact strength, +23°C	**18 / 19**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**11 / 11**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**5600 / -**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**166 / -**	MPa	ISO 178
Flexural strength, 23°C	**190 / -**	MPa	ISO 178

Flexural strain at flexural strength, 23°C	**5 / -**	%	ISO 178
Flexural stress at break, 23°C	**187 / -**	MPa	ISO 178
Flexural strain at break, 23°C	**6 / -**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**215 / ***	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	**189 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**208 / ***	°C	ISO 75-1/-2
Vicat softening temperature B, 50 N, 50 K/h	**207 / ***	°C	ISO 306
Melting Temperature	**215**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1190 / 1190**	kg/m³	ISO 1183
Water absorption	**2 / ***	%	Sim. to ISO 62
Humidity absorption	**0.8 / ***	%	Sim. to ISO 62
Moisture content	**0.03 / -**	Gew.-%	ISO 15512
Bulk density, Granulate	**549**	kg/m³	-
Density	**1190**	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	-

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**1E12 / -**	Ohm*m	IEC 62631-3-1
Relative permittivity, 100Hz	**4.4 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.1 / -**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**500 / -**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**470 / -**	E-4	IEC 62631-2-1

CTI, test solution A, 50 drops value	**600 / -**	-	IEC 60112
Assessment of the insulation group	**I**	-	DIN EN 60664-1

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**7 / ***	cm^3/10min	ISO 1133
Temperature	**230 / ***	°C	-
Load	**5 / ***	kg	-
Molding shrinkage, parallel	**0.7 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.9 / ***	%	ISO 294-4, 2577

Polymer analytics	dry / cond	Unit	Test Standard
Corrected Viscosity number	**171 / ***	cm^3/g	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**260**	°C	ISO 294
Injection Molding, mold temperature	**80**	°C	ISO 294
Injection Molding, injection velocity	**200**	mm/s	ISO 294

Characteristics

Processing
K&K process

Special Characteristics
High impact strength, Semi-crystalline, Light-stabilized, High heat resistant

Color
Black

Additives
Antioxidant agent, Release agent, Impact restistant, Heat stabilizer, Processing aids

Chemical Resistance
Oil 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
Min. melt temperature	**240**	°C	-
Max. melt temperature	**270**	°C	-