Product Information

VESTAMID® X7167

HIGH VISCOSITY, SELF-EXTINGUISHING PA12 COMPOUND, FREE OF HALOGEN AND PHOSPHORUS

VESTAMID® X7167 NC is a heat stabilized PA12 compound containing a non-migrating flame retardant, free of halogen and phosphorous.

VESTAMID® X7167 NC complies with the requirements of FAR 25.853 or ABD 0031. The absence of halogens and phosphorous makes VESTAMID® X7167 NC especially suitable for interior parts in aircrafts, railways and ships.

This resin can be used for extrusion as well as for injection molding. Due to the presence of flame retardant melt temperature should not exceed 260 °C. We recommend melt temperatures of 210 - 230 °C.

VESTAMID® X7167 NC is supplied as cylindrical pellets, ready for use, in moisture-proof bags.

The use of colorants may affect 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, Aircraft and Aerospace, Industry and Engineering

Sustainability
Sustainable electricity

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), Fire / burn

Additives
Lubricant, Flame retardant

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L Compound low	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**25.7**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**6.1**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**6.1**	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	**-2.5**	kg CO_2 eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**247000 / 209000**	psi	ISO 527
Tensile strength	**6820 / 6090**	psi	ISO 527
Yield stress	**6820 / 6090**	psi	ISO 527
Yield strain	**5 / 13**	%	ISO 527
Stress at 50% strain	**5220 / 4930**	psi	ISO 527
Stress at break	**6820 / 5080**	psi	ISO 527
Nominal strain at break, tB	**200 / >50**	%	ISO 527
Charpy impact strength, +23°C	**N / N**	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**N / N**	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, +23°C	**3.33 / 4.28**	ftlb/in²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**2.85 / 2.85**	ftlb/in²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**255000 / 203000**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**8410 / 6090**	psi	ISO 178
Flexural strength, 23°C	**9570 / 7690**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**6 / 6**	%	ISO 178

Flexural stress at break, 23°C	**N / N**	psi	ISO 178
Flexural strain at break, 23°C	**N / 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	**302 / ***	°F	ISO 306
Melting Temperature	**352**	°F	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1.05 / -**	g/cm³	ISO 1183
Water absorption	**1.5 / ***	%	Sim. to ISO 62
Humidity absorption	**0.6 / ***	%	Sim. to ISO 62
Density	**1.05**	g/cm³	ASTM D 792

Burning Behav.	**dry / cond**	**Unit**	**Test Standard**
Burning behav. at 1.5 mm nom. thickn.	**V-2 / ***	class	IEC 60695-11-10
Thickness tested	**0.0630 / ***	in	-
Burnin behav. at thickness h	**V-2 / ***	class	IEC 60695-11-10
Thickness tested	**0.1260 / ***	in	-
Oxygen index	**26 / ***	%	ISO 4589-1/-2
Limiting Oxygen Index	**26**	%	ASTM D 2863
Thickness tested	**0.0591**	in	FAR 25.853
Burning behav. (aircraft int.), 12s Ignition Time	**pass**	-	FAR 25.853
Flame time	**8**	s	FAR 25.853
Flaming time of drippings	**2**	s	FAR 25.853
Burn length	**0.3937**	in	FAR 25.853

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**1E12 / 2E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**- / >1E15**	Ohm/sq	IEC 62631-3-2
Relative permittivity, 50Hz	**- / 5**	-	IEC 62631-2-1
Relative permittivity, 100Hz	**- / 4.8**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.6 / 3.2**	-	IEC 62631-2-1
Dissipation factor, 50Hz	**- / 990**	E-4	IEC 62631-2-1
Dissipation factor, 100Hz	**- / 800**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**380 / 400**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**864 / 914**	kV/in	IEC 60243-1
Dielectric strength, AC, S20/P50	**711 / -**	V/mil	Sim. to IEC 60243-1
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	**4.1 / ***	cm^3/10min	ISO 1133
Temperature	**230 / ***	°C	-
Load	**2.16 / ***	kg	-
Molding shrinkage, parallel	**0.6 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.9 / ***	%	ISO 294-4, 2577
Mold temperature	**176 / ***	°F	-
Melt temperature	**464 / ***	°F	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	**6090 / ***	in^3/lb	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**464**	°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
Electrical and Electronical, General purpose

Color
Natural color

Processing
Profile extrusion

Additives
Flame retardant, Heat stabilizer

Special Characteristics
Halogen-free, Phosphorus-free, High heat resistant, High viscosity, Self-extinguishing

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)

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)

Other

- ✔ Ethyl Acetate (23°C)
- ✔ Hydrogen peroxide (23°C)
- ✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Min. mold temperature	**86**	°F	-
Max. mold temperature	**212**	°F	-
Min. melt temperature	**428**	°F	-
Max. melt temperature	**500**	°F	-