

Product Information

VESTAMID® X7166

LOW VISCOSITY, SELF-EXTINGUISHING POLYAMIDE 12 COMPOUND, FREE OF HALOGEN AND PHOSPHORUS



VESTAMID® X7166 NC is a heat stabilized PA 12 compound containing a non-migrating flame retardant, free of halogen and phosphorus. Tested according to UL94, VESTAMID® X7166 complies with the flammability class V-2.

Due to the halogen- and phosphorus-free flame retardants, VESTAMID® X7166 is especially suitable for the electronic and cable industry. It can be used for injection molding as well as for wire extrusion coating.

VESTAMID® X7166 is supplied as cylindrical granules, ready for processing, in moisture-proof bags.

Due to the flame retardants, the melt temperature should not exceed 260°C. We recommend melt temperatures within a range of 210°C to 230°C.

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

Delivery form

Pellets, Granules

Sustainability

Sustainable electricity

Resistance to

Heat (thermal stability), Fire / burn

Processing

Injection molding, Extrusion

Additives

Flame retardant

LCA-values

LCA name of certificate

dry

[VESTAMID® L Compound medium](#)

Unit

-

Test Standard

ISO 14040, 14044

LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	25.6	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	6.0	kg CO ₂ eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	6.0	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	-2.4	kg CO ₂ eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	274000 / -	psi	ISO 527
Tensile strength	6820 / -	psi	ISO 527
Yield stress	6820 / -	psi	ISO 527
Yield strain	5.8 / -	%	ISO 527
Stress at break	4640 / -	psi	ISO 527
Nominal strain at break, tB	20 / -	%	ISO 527
Charpy impact strength, +23°C	27.1 / -	ftlb/in ²	ISO 179/1eU
Type of failure	C / -	-	-
Charpy impact strength, -30°C	38.1 / -	ftlb/in ²	ISO 179/1eU
Type of failure	C / -	-	-
Charpy notched impact strength, +23°C	1.43 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Charpy notched impact strength, -30°C	2.38 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Flexural modulus, 23°C	257000 / -	psi	ISO 178
Flexural stress at conv. deflection, 23°C	7980 / -	psi	ISO 178
Flexural strength, 23°C	9570 / -	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
Glass transition temperature, DSC	106 / *	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	122 / *	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	284 / *	°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	1.07 / -	g/cm ³	ISO 1183
Water absorption	1.3 / *	%	Sim. to ISO 62
Humidity absorption	0.6 / *	%	Sim. to ISO 62
Density	1.07	g/cm ³	ASTM D 792

Burning Behav.	dry / cond	Unit	Test Standard
UL Yellow Card available	yes / *	-	-
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	-
Burning behav. at thickness h	V-2 / *	class	IEC 60695-11-10
Thickness tested	0.0295 / *	in	-
Oxygen index	34 / *	%	ISO 4589-1/-2
Limiting Oxygen Index	34	%	ASTM D 2863

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	1E12 / -	Ohm*m	IEC 62631-3-1
Relative permittivity, 1MHz	3.6 / -	-	IEC 62631-2-1

Dissipation factor, 1MHz	340 / -	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	711 / -	kV/in	IEC 60243-1
CTI, test solution A, 50 drops value	600 / -	-	IEC 60112
Assessment of the insulation group	I	-	DIN EN 60664-1

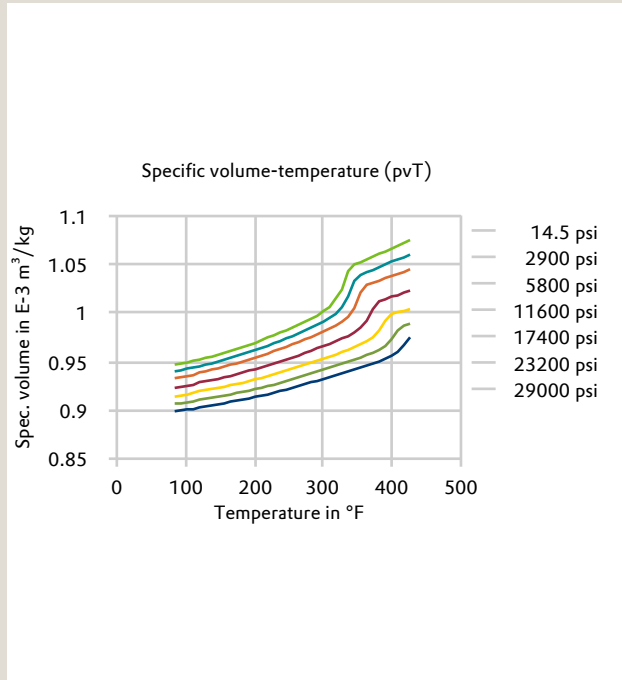
Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	108 / *	cm ³ /10min	ISO 1133
Temperature	250 / *	°C	-
Load	2.16 / *	kg	-
Molding shrinkage, parallel	0.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / *	%	ISO 294-4, 2577
Mold temperature	176 / *	°F	-
Melt temperature	428 / *	°F	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	3320 / *	in ³ /lb	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	428	°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, IT and telecommunication, Cable sheathing

Processing

Profile extrusion

Special Characteristics

Halogen-free, Phosphorus-free, Semi-crystalline, High heat resistant, Low viscosity

Features

Low coefficient of friction

Color

Natural color

Additives

Flame retardant, Heat stabilizer, Processing aids

Chemical 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)

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
Density of melt	53.7	lb/ft ³	-
Thermal conductivity of melt	1.39	BTU in/(hr ft ² °F)	-
Spec. heat capacity of melt	1.13	BTU/(lb·F)	-
Min. mold temperature	86	°F	-
Max. mold temperature	212	°F	-

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Min. melt temperature	392	°F	-
Max. melt temperature	464	°F	-