Product Information

VESTAMID® X7229

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

VESTAMID® X7229 NC is a heat-stabilized and plasticized PA 12 compound containing a non-migrating flame retardant, free of halogen and phosphorus. VESTAMID® X7229 NC complies with the requirements of FAR 25.853 or ABD 0031.

Due to the halogen- and phosphorus-free flame retardants, VESTAMID® X7229 NC is especially suitable for interior parts in aircrafts, railway vehicles and ships. It can be used for extrusion as well as for injection molding.
Due to the flame retardants, melt temperature should not exceed 260°C. We recommend melt temperatures of 210-230°C.

VESTAMID® X7229 NC is supplied as cylindrical pellets ready for processing 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

Sustainability
Sustainable electricity

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), Fire / burn

Electrical
Insulating

Additives
Flame retardant, Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L Compound medium	-	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	**980 / -**	MPa	ISO 527
Tensile strength	**36 / -**	MPa	ISO 527
Yield stress	**36 / -**	MPa	ISO 527
Yield strain	**17 / -**	%	ISO 527
Stress at 50% strain	**32 / -**	MPa	ISO 527
Stress at break	**38 / -**	MPa	ISO 527
Nominal strain at break, tB	**>50 / -**	%	ISO 527
Charpy impact strength, +23°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**11 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**5 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**770 / -**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**23 / -**	MPa	ISO 178
Flexural strength, 23°C	**33 / -**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**8.6 / -**	%	ISO 178

Flexural stress at break, 23°C	**N / -**	MPa	ISO 178
Flexural strain at break, 23°C	**N / -**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**175 / ***	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	**40 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**130 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**170 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**150 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**80 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**175**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1060 / -**	kg/m³	ISO 1183
Water absorption	**1.4 / ***	%	Sim. to ISO 62
Humidity absorption	**0.6 / ***	%	Sim. to ISO 62
Moisture content	**0.04 / -**	Gew.-%	ISO 15512
Bulk density, Granulate	**608**	kg/m³	-
Weight per 1000 granules	**15.8 / -**	g	-
Density	**1060**	kg/m³	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	**1.6 / ***	mm	-
Burnin behav. at thickness h	**V-2 / ***	class	IEC 60695-11-10
Thickness tested	**3.2 / ***	mm	-
Burning behav. at thickness h	**V-2 / ***	class	IEC 60695-11-10
Thickness tested	**0.8 / ***	mm	-
Oxygen index	**24 / ***	%	ISO 4589-1/-2

Limiting Oxygen Index	**24**	%	ASTM D 2863
Thickness tested	**1.5**	mm	FAR 25.853
Burning behav. (aircraft int.), 12s Ignition Time	**pass**	-	FAR 25.853
Flame time	**6**	s	FAR 25.853
Flaming time of drippings	**1**	s	FAR 25.853
Burn length	**10.0**	mm	FAR 25.853
UL 94 Flame rating	**V-2**	-	UL 94

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**1E11 / -**	Ohm*m	IEC 62631-3-1
Relative permittivity, 1MHz	**5 / -**	-	IEC 62631-2-1
Dissipation factor, 1MHz	**1700 / -**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/P50	**27 / -**	kV/mm	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

Optical properties	**dry**	**Unit**	**Test Standard**
Color b	**7.3**	-	CIE

Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**26 / ***	cm^3/10min	ISO 1133
Temperature	**220 / ***	°C	-
Load	**10 / ***	kg	-
Molding shrinkage, parallel	**0.6 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.8 / ***	%	ISO 294-4, 2577

Polymer analytics	**dry / cond**	**Unit**	**Test Standard**
Viscosity number	**173 / ***	cm^3/g	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**220**	°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

Processing
Profile extrusion

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

Features
Non-migrating ingredients

Color
Natural color

Additives
Flame retardant, Heat stabilizer

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)