VESTAMID®

Product Information

VESTAMID® L2170 OR E20005

HIGH VISCOSITY, HEAT- AND LIGHT-STABILIZED POLYAMIDE 12 RESIN

VESTAMID® L2170 OR E20005 has been designed especially for the extrusion of cable sheathings, but it can be used advantageously also for the manufacture of semi-finished products like tubes, rods, sheets and profiles.

As a partially crystalline Polyamide 12, VESTAMID® L2170 OR E20005 exhibits a low coefficient of friction which eases the installation of cables in ducts. Sheathings made of VESTAMID® L2170 OR E20005 protect direct buried cables from attack by termites and rodents, due to their tough and smooth surface finish.

Because of low water absorption parts produced from VESTAMID® L2170 OR E20005 maintain their dimension in environments with varying humidity levels, while maintaining a high toughness, a low coefficient of friction and good chemical resistance.

VESTAMID® L2170 OR E20005 is supplied as cylindrical granules, ready for processing, in moisture-proof bags.

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, Extrusion

Delivery form
Pellets, Granules

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

Electrical
Insulating

Additives
Unfilled

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	**239000 / -**	psi	ISO 527
Tensile strength	**6670 / -**	psi	ISO 527
Yield stress	**6670 / -**	psi	ISO 527
Yield strain	**4 / -**	%	ISO 527
Stress at 50% strain	**5220 / -**	psi	ISO 527
Stress at break	**7980 / -**	psi	ISO 527
Nominal strain at break, tB	**240 / -**	%	ISO 527
Charpy impact strength, +23°C	**N / -**	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, +23°C	**2.85 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**3.33 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**228000 / -**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**7540 / -**	psi	ISO 178
Flexural strength, 23°C	**9430 / -**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**6.5 / -**	%	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	**111 / ***	°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	**230 / ***	°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	**298 / ***	°F	ISO 306
Melting Temperature	**352**	°F	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1.02 / -**	g/cm³	ISO 1183
Water absorption	**1.6 / ***	%	Sim. to ISO 62
Humidity absorption	**0.8 / ***	%	Sim. to ISO 62
Shore D hardness	**72 / -**	-	ISO 7619-1
Density	**1.02**	g/cm³	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	**0.0591 / ***	in	-
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.0295 / ***	in	-
Burning behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.1181 / ***	in	-
Oxygen index	**24 / ***	%	ISO 4589-1/-2
Limiting Oxygen Index	**24**	%	ASTM D 2863

Glow Wire Flammability Index (GWFI)	**1710**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.0157**	in	-
Glow Wire Flammability Index (GWFI)	**1650**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.0295**	in	-
Glow Wire Flammability Index (GWFI)	**1520**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.0591**	in	-
Glow Wire Flammability Index (GWFI)	**1520**	°F	IEC 60695-2-12
GWFI - thickness tested	**0.1181**	in	-
Glow Wire Ignition Temperature (GWIT)	**1650**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.0157**	in	-
Glow Wire Ignition Temperature (GWIT)	**1610**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.0295**	in	-
Glow Wire Ignition Temperature (GWIT)	**1470**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.0591**	in	-
Glow Wire Ignition Temperature (GWIT)	**1340**	°F	IEC 60695-2-13
GWIT - thickness tested	**0.1181**	in	-
Hot Wire Ignition (HWI)	**4**	PLC	IEC 60695-2-20
HWI - thickness tested	**0.0157**	in	-
Hot Wire Ignition (HWI)	**4**	PLC	IEC 60695-2-20
HWI - thickness tested	**0.0295**	in	-
Hot Wire Ignition (HWI)	**3**	PLC	IEC 60695-2-20
HWI - thickness tested	**0.0591**	in	-
Hot Wire Ignition (HWI)	**2**	PLC	IEC 60695-2-20
HWI - thickness tested	**0.1181**	in	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**9.2E12 / -**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**8.4E14 / -**	Ohm/sq	IEC 62631-3-2

Relative permittivity, 50Hz	**4.2 / -**	-	IEC 62631-2-1
Relative permittivity, 100Hz	**4.1 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3 / -**	-	IEC 62631-2-1
Dissipation factor, 50Hz	**670 / -**	E-4	IEC 62631-2-1
Dissipation factor, 100Hz	**700 / -**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**353 / -**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20	**813 / -**	kV/in	IEC 60243-1
Dielectric strength, AC, P25/P25	**947 / -**	V/mil	IEC 60243-1
Dielectric strength, DC, S20/S20	**1270 / -**	kV/in	IEC 60243-1/2
CTI, test solution A, 50 drops value	**600 / -**	-	IEC 60112
CTI, Performance Level Categories, PLC	**0**	class	ASTM D 3638
Dielectric strength, Short Time	**937 / -**	V/mil	ASTM D 149
Volume resistivity	**1E14 / -**	Ohm*cm	ASTM D 257
Arc Resistance	**4 / -**	class	ASTM D 495

Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**3.4 / ***	cm^3/10min	ISO 1133
Temperature	**230 / ***	°C	-
Load	**2.16 / ***	kg	-
Melt volume-flow rate, MVR	**15 / ***	cm^3/10min	ISO 1133
Temperature	**464 / ***	°F	-
Load	**11 / ***	lb	-
Molding shrinkage, parallel	**0.7 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.3 / ***	%	ISO 294-4, 2577
Mold temperature	**140 / ***	°F	-
Melt temperature	**464 / ***	°F	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	**5730 / ***	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	**140**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294

Characteristics

Applications
Electrical and Electronical, IT and telecommunication, Tube and hose, Cable sheathing

Processing
Profile extrusion

Special Characteristics
Semi-crystalline, Light-stabilized, High heat resistant, High viscosity

Features
Low coefficient of friction, Termite and rodent resistance

Color
Orange

Additives
Light stabilizer, Heat stabilizer, Processing aids

Chemical Resistance
General chemical resistance