Product Information

VESTAMID® Terra DS16

MEDIUM-VISCOSITY POLYAMIDE 1010

VESTAMID® Terra DS16 NC is a medium-viscosity PA 1010 basic polymer. VESTAMID® Terra DS16 is semi-crystalline, which is the reason for its high mechanical resistance and chemical stability. It absorbs only little water. As a result its mechanical properties vary little when exposed to changing environmental humidity, and the material features a high dimensional stability.

VESTAMID® Terra DS16 can be used to manufacture films with good transparency.

The high melting point of VESTAMID Terra DS16 compounds results in a high heat deflection temperature that can be advantageous for some applications.

VESTAMID® Terra DS16 occupies a position between the high-performance long-chain polyamides such as PA 12 and PA 1212 and the standard polyamides PA 6 and PA 66, which have a shorter chain length.

VESTAMID® Terra DS16 NC is supplied as cylindrical granules, ready for processing, in moisture-proof bags.

VESTAMID® Terra is a group of new polyamides, the monomers for which are based entirely or partly on renewable raw materials.

VESTAMID® Terra DS is the polycondensation product of 1,10-decamethylene diamine (D) and 1,10-dodecanedioic acid (sebacic acid-S). Because both monomers are extracted from castor oil, VESTAMID® Terra DS is based on natural, bio-based and renewable resources up to 100%.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications.

Key Features

Industrial Sector
Automotive and Mobility, Optics, Sports and Lifestyle

Sustainability
Contains renewable resources

Processing
Injection molding, Extrusion

Optics
X-ray transparent, Opaque

Conformity
Biocompatibility, Contains renewable resources

Additives
Unfilled

VESTAMID® Terra

Delivery form
Pellets, Granules

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® TERRA DS	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**1763.4**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**5.4**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**7.9**	kg CO_2 eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	**22.6**	Annual crop eq. y	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**1700 / 1250**	MPa	ISO 527
Yield stress	**54 / 48**	MPa	ISO 527
Yield strain	**5 / 22**	%	ISO 527
Stress at 50% strain	*** / 38**	MPa	ISO 527
Nominal strain at break, tB	**>50 / >50**	%	ISO 527
Charpy impact strength, +23°C	**N / N**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / N**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**7 / 7**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**7 / 5**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**1780 / 1230**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**58 / 36**	MPa	ISO 178
Flexural strength, 23°C	**72 / 50**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**7 / 9**	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**200 / ***	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**37 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**55 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**136 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**196 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**171 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**115 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**135 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**200**	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	**1040 / -**	kg/m³	ISO 1183
Water absorption	**1.8 / ***	%	Sim. to ISO 62
Humidity absorption	**1.4 / ***	%	Sim. to ISO 62
Density	**1040**	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	-
Burnin behav. at thickness h	**V-2 / ***	class	IEC 60695-11-10
Thickness tested	**3.2 / ***	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**>1E13 / 8.3E11**	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	**>1E15 / >1E15**	Ohm per square	IEC 62631-3-2
Relative permittivity, 50Hz	**3.6 / -**	-	IEC 62631-2-1
Relative permittivity, 100Hz	**3.6 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.1 / -**	-	IEC 62631-2-1

Dielectric strength, AC, S20/S20, t. 1 mm	**37 / -**	kV/mm	IEC 60243-1

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**N / A / ***	cm^3/10min	ISO 1133
Molding shrinkage, parallel	**1.4 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.5 / ***	%	ISO 294-4, 2577

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	**160 / ***	cm^3/g	ISO 307, 1157, 1628
biogenic carbon content	**100**	%	ASTM D 6866

Characteristics

Applications
(Sun-) glasses, Monofilament

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

Features
Non-corrosive, Dishwasher detergents resistant

Color
Natural color

Chemical Resistance
General chemical resistance