Product Information

VESTAMID® NRG 3001 NC

HIGH-VISCOSITY, HEAT- AND LIGHT-STABILIZED PA12 COMPOUND FOR EXTRUSION

VESTAMID® NRG 3001 is a polyamide 12 compound developed for the manufacturing of hydrocarbon transport piping systems and liners. VESTAMID® NRG 3001 is characterized by easy processing and excellent dimensional control during pipe extrusion, especially by processing of large diameter pipes.

The material has an excellent resistance to hydrocarbons (i.e. crude oil) and oilfield chemicals (i.e. paraffin inhibitors). The properties of components made of VESTAMID® NRG 3001 are not affected by the contact with these media, resulting in high dimensional stability.

The process temperature should be within a range of 220°C to 240°C. Generally, VESTAMID® NRG 3001 is processable on most of the commercially available PE extrusion machines.

VESTAMID® NRG 3001 is supplied as cylindrical granules, ready for processing, in moisture-proof bags.

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.

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, Energy, Oil and Gas

Sustainability
Sustainable electricity

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering, Oil / fuels

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	**191000 / -**	psi	ISO 527
Tensile strength	**5510 / -**	psi	ISO 527
Yield stress	**5800 / -**	psi	ISO 527
Yield strain	**14 / -**	%	ISO 527
Stress at 50% strain	**5510 / -**	psi	ISO 527
Stress at break	**6960 / -**	psi	ISO 527
Nominal strain at break, tB	**160 / -**	%	ISO 527
Typical for the mat. nom. strain at br., tB	**200**	%	ISO 527
Poisson's ratio, 23°C	**0.43 / ***	-	ISO 527
Poisson's ratio, var. temp.	**0.45 / ***	-	ISO 527
Temperature	**212 / ***	°F	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	**25.7 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**P / -**	-	-
Charpy notched impact strength, -30°C	**7.14 / -**	ftlb/in²	ISO 179/1eA

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**349 / ***	°F	ISO 11357-1/-3
Thermal conductivity, LFA, solid state	**1.67 / ***	BTU in/(hr ft² °F)	ISO 22007-4
Vicat softening temperature A, 10 N, 50 K/h	**342 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**7.78E-5 / ***	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**7.5E-5 / ***	in/in/°F	ISO 11359-1/-2
Melting Temperature	**349**	°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	**0.9 / ***	%	Sim. to ISO 62
Moisture content	**0.02 / -**	wt.-%	ISO 15512
Bulk density, Granulate	**37.3**	lb/ft³	-
Weight per 1000 granules	**15.4 / -**	g	-
Density	**1.02**	g/cm³	ASTM D 792

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**N / A / ***	cm³/10min	ISO 1133
Molding shrinkage, parallel	**0.4 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.5 / ***	%	ISO 294-4, 2577
Mold temperature	**140 / ***	°F	-
Melt temperature	**554 / ***	°F	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**554**	°F	ISO 294
Injection Molding, mold temperature	**140**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294

Characteristics

Applications
Tube and hose

Color
Natural color

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