

Product Information

VESTAMID® NRG 1001

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



VESTAMID® NRG 1001 NC is a high-viscosity, plasticized and impact-modified PA 12 compound with heat and light stabilizers for the extrusion of flexible tubing and hoses especially for oil and petrochemical applications.

VESTAMID® NRG 1001 NC is characterized by easy processing and good dimensional control during pipe extrusion, especially when processing large pipe diameters.

Properties of compounds based on polyamide 12 vary little with changing humidity due to low moisture absorption.

Parts made of the described semi-crystalline material are characterized by exceptional impact strength, low coefficient of sliding friction and good chemical resistance.

The recommended process temperature for extrusion is 220°C to 250°C.

VESTAMID® NRG 1001 NC is supplied ready for use in moisture-proof bags.

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.

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

Sustainable, Energy, Oil and Gas

Sustainability

Sustainable electricity

Processing

Extrusion

Delivery form

Pellets, Granules

Resistance to

Hydrolysis / hot water, UV / light / weathering, Oil / fuels

Additives

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	370 / 370	MPa	ISO 527
Tensile strength	42 / -	MPa	ISO 527
Stress at 50% strain	27 / 24	MPa	ISO 527
Stress at break	42 / 52	MPa	ISO 527
Nominal strain at break, tB	200 / 300	%	ISO 527
Typical for the mat. nom. strain at br., tB	≥150	%	ISO 527
Charpy impact strength, +23°C	N / N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	130 / 130	kJ/m ²	ISO 179/1eA
Type of failure	P / P	-	-
Charpy notched impact strength, -30°C	7 / 13	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Flexural modulus, 23°C	380 / 360	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	13 / 12	MPa	ISO 178
Flexural strength, 23°C	20 / 20	MPa	ISO 178
Flexural strain at flexural strength, 23°C	9 / 9	%	ISO 178
Flexural stress at break, 23°C	N / N	MPa	ISO 178

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Flexural strain at break, 23°C	N / N	%	ISO 178
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Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	172 / *	°C	ISO 11357-1/-3
Glass transition temperature, DSC	13 / *	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	53 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	105 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	167 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	121 / *	°C	ISO 306
Melting Temperature	172	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1020 / -	kg/m ³	ISO 1183
Water absorption	1.3 / *	%	Sim. to ISO 62
Humidity absorption	0.7 / *	%	Sim. to ISO 62
Density	1020	kg/m ³	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	HB / *	class	IEC 60695-11-10
Thickness tested	3.2 / *	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	1.5E9 / 2E9	Ohm*m	IEC 62631-3-1
Surface resistivity, C, circular electrodes	2.6E14 / 1.1E13	Ohm per square	IEC 62631-3-2
Test specimen	Platte 130x130x1 mm/	-	-

Relative permittivity, 50Hz	11.9 / -	-	IEC 62631-2-1
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Relative permittivity, 100Hz	11 / -	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.5 / -	-	IEC 62631-2-1
Dissipation factor, 50Hz	1760 / -	E-4	IEC 62631-2-1
Dissipation factor, 100Hz	1780 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	1120 / -	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	36 / 35	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	0.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6 / *	%	ISO 294-4, 2577
Mold temperature	60 / *	°C	-
Melt temperature	290 / *	°C	-

Pipes Properties	dry / cond	Unit	Test Standard
Yield stress, pipe, 23°C	26 / *	MPa	Evonik standard
Yield strain, pipe, 23°C	35 / *	%	Evonik standard
Strain at break, pipe, 23°C	200 / *	%	Evonik standard

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	290	°C	ISO 294
Injection Molding, mold temperature	60	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Characteristics

Applications

Tube and hose

Color

Natural color

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Processing

Profile extrusion, Pipe/Tube extrusion

Special Characteristics

High impact strength, Semi-crystalline, Light-stabilized, High heat resistant, High viscosity

Features

Low coefficient of friction

Additives

Plasticizer, Impact resistant, Light stabilizer, Heat stabilizer

Delivery form

Cylindrical pellets

Chemical Resistance

General chemical resistance