



# VESTAMID® NRG 1001

Evonik Industries AG - Polyamide 12

Saturday, January 20, 2024

## General Information

### Product Description

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.

### General

Material Status	• Commercial: Active		
Availability	• Europe	• North America	
Additive	• Heat Stabilizer • Impact Modifier	• Plasticizer • UV Stabilizer	
Features	• Chemical Resistant • Fuel Resistant • Good Dimensional Stability • Good Flexibility • Good Processability • Heat Stabilized	• High Impact Resistance • High Viscosity • Hydrolysis Resistant • Impact Modified • Light Stabilized • Low Friction	• Low Moisture Absorption • Oil Resistant • Plasticized • Semi Crystalline
Uses	• Hose • Oil/Gas Applications	• Piping • Tubing	
Appearance	• Natural Color		
Forms	• Granules	• Pellets	
Processing Method	• Extrusion	• Pipe Extrusion	• Profile Extrusion

### ASTM & ISO Properties <sup>1</sup>

Physical	Dry	Conditioned	Unit	Test Method
Density / Specific Gravity	1.02	--		ASTM D792
Density	1.02	--	g/cm <sup>3</sup>	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow	1.6	--	%	
Flow	0.70	--	%	
Water Absorption				ISO 62
Saturation, 73°F	1.3	--	%	
Water Absorption				ISO 62
Equilibrium, 73°F, 50% RH	0.70	--	%	

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<b>Mechanical</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Tensile Modulus	53700	53700	psi	ISO 527-1
Tensile Stress (Break)	6090	7540	psi	ISO 527-2
Tensile Stress				ISO 527-2
--	6090	--	psi	
50% Strain	3920	3480	psi	
Nominal Tensile Strain at Break	200	300	%	ISO 527-2
Flexural Modulus (73°F)	55100	52200	psi	ISO 178
Flexural Stress <sup>2</sup> (73°F)	1890	1740	psi	ISO 178
Flexural Strain at Flexural Strength				ISO 178
73°F	9.0	9.0	%	
<b>Impact</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Charpy Notched Impact Strength				ISO 179/1eA
-22°F, Complete Break	3.3	6.2	ft-lb/in <sup>2</sup>	
73°F, Partial Break	62	62	ft-lb/in <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F	No Break	No Break		
73°F	No Break	No Break		
<b>Thermal</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load				ISO 75-2/B
66 psi, Unannealed	221	--	°F	
Deflection Temperature Under Load				ISO 75-2/A
264 psi, Unannealed	127	--	°F	
Glass Transition Temperature	55.4	--	°F	ISO 11357-2
Vicat Softening Temperature				
--	250	--	°F	ISO 306/B
--	333	--	°F	ISO 306/A
Peak Melting Temperature	342	--	°F	ASTM D3418
Melting Temperature	342	--	°F	ISO 11357-3
<b>Electrical</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Surface Resistivity <sup>3</sup> (0.0394 in)	2.6E+14	1.1E+13	ohms	IEC 62631-3-2
Volume Resistivity	1.5E+9	2.0E+9	ohms-m	IEC 62631-3-1
Electric Strength <sup>4</sup>	910	890	V/mil	IEC 60243-1
Relative Permittivity				IEC 62631-2-1
50 Hz	11.9	--		
100 Hz	11.0	--		
1 MHz	3.50	--		
Dissipation Factor				IEC 62631-2-1
50 Hz	0.18	--		
100 Hz	0.18	--		
1 MHz	0.11	--		
<b>Flammability</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Flammability Classification				IEC 60695-11-10, -20
0.06 in	HB	--		
0.13 in	HB	--		

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### Processing Information

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#### Extrusion

#### Dry Unit

Melt Temperature

428 to 482 °F

#### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> at conv. deflection

<sup>3</sup> circular electrodes

<sup>4</sup> AC, S20/S20