

## Product Information

### VESTAMID® NRG 2101 yellow

#### For Gas Pipes and Fittings

VESTAMID® NRG 2101 yellow is a high molecular grade PA 12 material developed by Evonik.

Its superior performance characteristics make it an ideal choice for expanding the use of thermoplastic piping systems at higher operating pressure and larger diameters to replace metallic piping systems in a safe and cost effective manner.

Besides extending the operating pressure limits of thermoplastic piping systems, VESTAMID® NRG 2101 yellow offers many of the same benefits, and in most instances more superior performance, as conventional PE piping systems.

- Tough and durable
- Corrosion resistant
- Resistant to heavy hydrocarbons
- High resistance to Slow Crack Growth and Rapid Crack Propagation
- Increased installation efficiencies
- Worry free performance

These characteristics make the VESTAMID® PA12 material an ideal choice when selecting appropriate thermoplastic piping materials in extending your gas distribution infrastructure.

We recommend a processing temperature between 230°C (446°F) and 260°C (500°F) – in some cases up to 280°C (536°F) – during the injection molding and extrusion process. The mold temperature should be within a range of 60°C (140°F) to 100°C (212°F).

Drying at 80°C (176°F) for 2 hours to 4 hours before processing is recommended.

Polyamide 12 is a high performance thermoplastic polymer with increased performance characteristics that translates into safe operations over the life of the installed pipeline.

It has a considerable record of safe and proven experience in many demanding applications, including fuel lines in passenger cars, air brake tubing in trucks and off-shore applications.

Property	Test method		Unit	VESTAMID® NRG 2101 yellow	
	international	national			
Density	23°C /73°F	ISO 1183	DIN EN ISO 1183	g/cm <sup>3</sup>	1.02
Melting range	ASTM D3418				
DSC	2 <sup>nd</sup> heating			°C /°F	177 /351
Tensile test		ISO 527-1	DIN EN ISO 527-1		
Stress at yield		ISO 527-2	DIN EN ISO 527-2	MPa	40
Strain at yield				%	12
Strain at break				%	> 150
Tensile modulus		ISO 527-1	DIN EN ISO 527-1	MPa	1350
		ISO 527-2	DIN EN ISO 527-2		
CHARPY impact strength		ISO 179/1eU	DIN EN ISO 179/1eU		
	-40°C /-40°F			kJ/m <sup>2</sup>	N <sup>1)</sup>
Shore hardness D		ISO 868	DIN EN ISO 868		73
Ball indentation hardness H30		ISO 2039-1	DIN EN ISO 2039-1	N/mm <sup>2</sup>	76
Vicat softening temperature		ISO 306	DIN EN ISO 306		
Method A	10 N			°C /°F	170 /338
Hydrostatic design basis (HDB)					
	23°C /73°F			psi	3150
	60°C /140°F			psi	2000
Maximum required strength (MRS)	20°C /68°F	ISO 9080	DIN EN ISO 9080	MPa	18
PENT, 2.4 MPa stress	80°C /176°F	ASTM F1473		h	> 2000
RCP-FST critical pressure		ISO 13477			
110mm SDR 11	0°C /32°F			bar	30
RCP-S4 critical pressure		ISO 13477			
110mm SDR 11	0°C /32°F			bar	2.7
Slow crack growth (SCG),20 bar		ISO 22621			
80°C /176°F 20% notched		ISO 13479		h	> 2000

<sup>1)</sup> N = No break