Product Information

VESTAMID® NRG 4101 YE

FOR STEEL PIPE PROTECTION (ENCASEMENT)

VESTAMID® NRG 4101 YE offers a flexible, mechanically tough encasement system that combines the advantages of polyethylene coating and cement mortar casing.

Uses of VESTAMID® NRG products
The important advantages of VESTAMID® NRG 4101 as an encasement material are:
- unusually high impact resistance and toughness, even at low temperatures
- excellent stress cracking resistance
- excellent wear resistance
- low sliding friction coefficient

Product characteristics compared with other encasement materials
VESTAMID® NRG 4101 YE has higher Shore hardness than polyethylene or polypropylene. In contrast to polyethylene or propylene encasement, therefore, the polyamide encasement offers, apart from the corrosion protection provided by the barrier effect, also mechanical protection for the encased steel pipe.

Application areas for the new encasement material are found in non-conventional installation technologies such as:
- horizontal directional drilling
- the soil displacement method with non-steered displacement hammers
- dynamic ramming
- plow technology

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 extrusion process.

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.

VESTAMID®

Key Features

Industrial Sector
Sustainable, Industry and Engineering, Energy, Oil and Gas

Delivery form
Pellets, Granules

Sustainability
Sustainable electricity

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	**189000 / -**	psi	ISO 527
Tensile strength	**5800 / -**	psi	ISO 527
Yield stress	**5800 / -**	psi	ISO 527
Yield strain	**13 / -**	%	ISO 527
Stress at break	**6960 / -**	psi	ISO 527
Nominal strain at break, tB	**200 / -**	%	ISO 527
Typical for the mat. nom. strain at br., tB	**>150**	%	ISO 527
Charpy impact strength, -40°C	**N / -**	ftlb/in^2	ISO 179/1eU

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**351 / ***	°F	ISO 11357-1/-3
Vicat softening temperature A, 10 N, 50 K/h	**338 / ***	°F	ISO 306
Melting Temperature	**351**	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	**1.02 / -**	g/cm³	ISO 1183
Shore D hardness	**73**[b] **/ -**	-	ISO 7619-1
Ball indentation hardness	**11000 / -**	psi	ISO 2039-1
Density	**1.02**	g/cm³	ASTM D 792

b: 3 seconds

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**500**	°F	ISO 294
Injection Molding, mold temperature	**140**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294

Characteristics

Applications
Corrosion protection, Encapsulation

Features
Low coefficient of friction

Special Characteristics
High impact strength, Environmental stress crack resistance

Color
Yellow