VESTAMID®

Product Information

VESTAMID® L2121 NC

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Resin: ISO 1874-PA12-P, EHL, 22-007

High viscosity, plasticized PA12 resin for extrusion of semi-rigid tubes.

Application examples: Pipes for the automotive industry

In the original and undamaged packaging, the product has a shelf life of at least 2 years if stored in dry rooms at temperatures not exceeding 30°C.

Key Features

Industrial Sector
Automotive and Mobility, Sustainable

Sustainability
Sustainable electricity

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Additives
Lubricant

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	**102000 / -**	psi	ISO 527
Yield stress	**5080 / -**	psi	ISO 527
Yield strain	**20 / -**	%	ISO 527
Stress at 50% strain	**4930 / -**	psi	ISO 527
Typical for the mat. nom. strain at br., tB	**>50**	%	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	**19 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**3.33 / -**	ftlb/in²	ISO 179/1eA
Type of failure	**C / -**	-	-

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**349 / ***	°F	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	**113 / ***	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**230 / ***	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**338 / ***	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**266 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**8.89E-5 / ***	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**9.44E-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
Humidity absorption	**0.6 / ***	%	Sim. to ISO 62
Density	**1.02**	g/cm³	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	**0.0630 / ***	in	-
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.1260 / ***	in	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**1E12 / -**	Ohm*m	IEC 62631-3-1
Relative permittivity, 100Hz	**6.5 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.4 / -**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**1900 / -**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**550 / -**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/P50	**864 / -**	V/mil	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	**600 / -**	-	IEC 60112
Assessment of the insulation group	**I**	-	DIN EN 60664-1

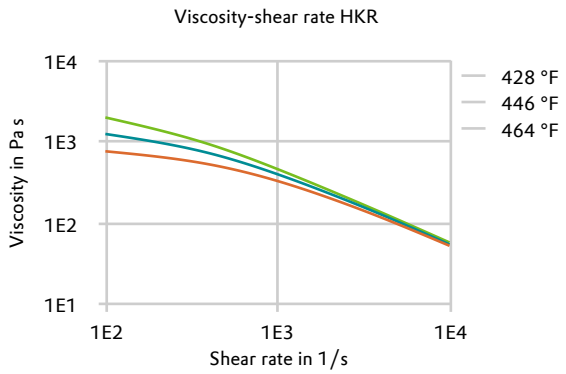
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	**0.6 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.6 / ***	%	ISO 294-4, 2577

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**446**	°F	ISO 294
Injection Molding, mold temperature	**176**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294

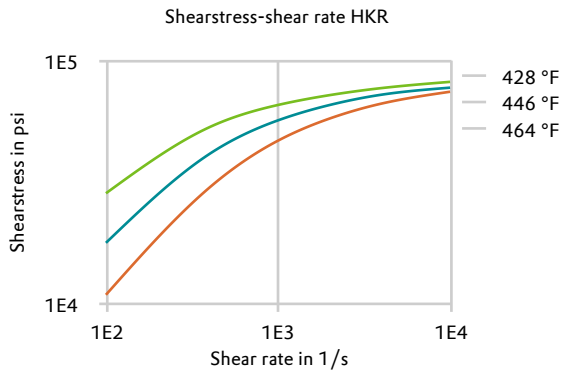
Injection Molding, pressure at hold	**10200**	psi	ISO 294

Diagrams

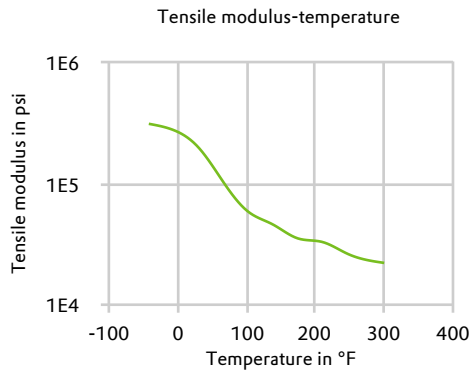
Viscosity-shear rate HKR



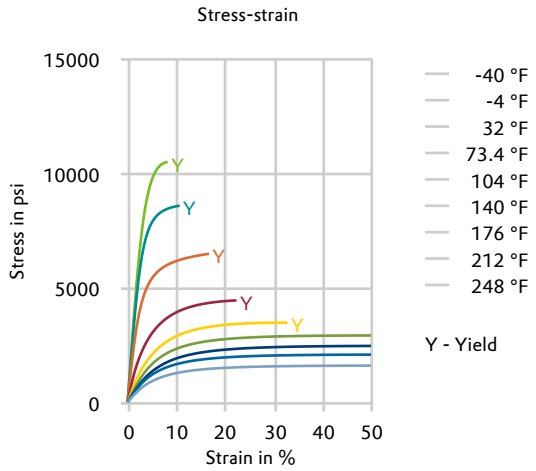
Shearstress-shear rate HKR



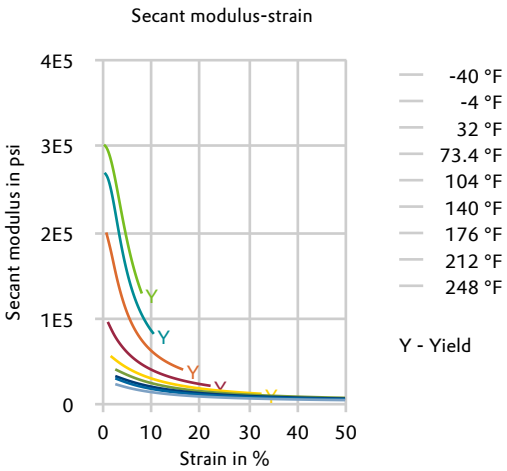
Tensile modulus-temperature



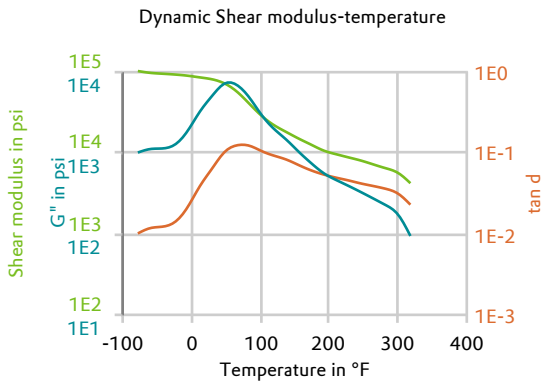
Stress-strain



Secant modulus-strain



Dynamic Shear modulus-temperature



VESTAMID®

Characteristics

Processing
Profile extrusion, Pipe/Tube extrusion

Additives
Plasticizer

Special Characteristics
Light-stabilized, U.V. stabilized, High heat resistant

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% by mass) (23°C)

Bases

- ✔ Sodium Hydroxide solution (35% by mass) (23°C)
- ✔ Sodium Hydroxide solution (1% by mass) (23°C)
- ✔ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ✔ Isopropyl alcohol (23°C)
- ✔ Methanol (23°C)
- ✔ Ethanol (23°C)

Hydrocarbons

- ✔ n-Hexane (23°C)
- ✔ Toluene (23°C)
- ✔ iso-Octane (23°C)

Ketones

- ✔ Acetone (23°C)

Ethers

- ✔ Diethyl ether (23°C)

Mineral oils

- ✔ SAE 10W40 multigrade motor oil (23°C)
- ✔ Insulating Oil (23°C)

Standard Fuels

- ✔ ISO 1817 Liquid 1 (60°C)
- ✔ ISO 1817 Liquid 2 (60°C)
- ✔ ISO 1817 Liquid 3 (60°C)
- ✔ ISO 1817 Liquid 4 (60°C)
- ✔ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✔ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✔ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
- ✔ Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
- ✔ Diesel EN 590 (100°C)

Salt solutions

- ✔ Sodium Chloride solution (10% by mass) (23°C)
- ✔ Sodium Carbonate solution (20% by mass) (23°C)
- ✔ Sodium Carbonate solution (2% by mass) (23°C)
- ✔ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✔ Ethyl Acetate (23°C)
- ✔ Hydrogen peroxide (23°C)
- ✔ DOT No. 4 Brake fluid (120°C)
- ✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Min. mold temperature	**86**	°F	-
Max. mold temperature	**212**	°F	-
Min. melt temperature	**410**	°F	-
Max. melt temperature	**482**	°F	-