Product Information

VESTAMID® L1833 NC

MEDIUM-VISCOSITY, HEAT-STABILIZED, GLASS FIBER–REINFORCED COMPOUND BASED ON NYLON 12

VESTAMID® L1833 is a 23% glass fiber-reinforced, easily demoldable and heat-stabilized polyamide 12 compound.

Due to its mold release properties, VESTAMID® L1833 is suitable for the efficient production of injection molded parts with short cycle times.

Further advantages of VESTAMID® L1833 are the characteristic properties of polyamide 12 as low water absorption, good dimensional stability and almost the same properties at changing ambient humidity.
VESTAMID® L1833 is supplied as cylindrical granules, ready for processing, in moisture-proof bags.

The use of colorants may change property values.

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.

Key Features

Industrial Sector
Automotive and Mobility, Sustainable, Industry and Engineering

Sustainability
Sustainable electricity

Processing
Injection molding

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), Oil / fuels

Electrical
Insulating

Conformity
Automotive

Additives
Glass fibers, Lubricant

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L GF medium	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**23.6**	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	**5.1**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**5.1**	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	**-2.3**	kg CO_2 eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**5500 / 4800**	MPa	ISO 527
Tensile strength	**107 / -**	MPa	ISO 527
Yield stress	**107 / 95**	MPa	ISO 527
Yield strain	**4 / 5**	%	ISO 527
Stress at break	**100 / ***	MPa	ISO 527
Nominal strain at break, tB	**6 / 6.5**	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	*** / 5000**	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	*** / 3700**	MPa	ISO 899-1
Charpy impact strength, +23°C	**86 / 70**	kJ/m²	ISO 179/1eU
Type of failure	**C / -**	-	-
Charpy impact strength, -30°C	**95 / 75**	kJ/m²	ISO 179/1eU
Type of failure	**C / -**	-	-
Charpy notched impact strength, +23°C	**21 / 23**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**16 / 17**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**5300 / -**	MPa	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**178 / ***	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**40 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**160 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**175 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**175 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**175 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**70 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**80 / ***	E-6/K	ISO 11359-1/-2
Melting Temperature	**178**	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	**1170 / 1170**	kg/m³	ISO 1183
Water absorption	**1.2 / ***	%	Sim. to ISO 62
Humidity absorption	**0.6 / ***	%	Sim. to ISO 62
Density	**1170**	kg/m³	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	**3.0 / ***	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**>1E13 / 2E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, E	*** / >1E15**	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	**4.1 / 5**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.4 / 4**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**370 / 700**	E-4	IEC 62631-2-1

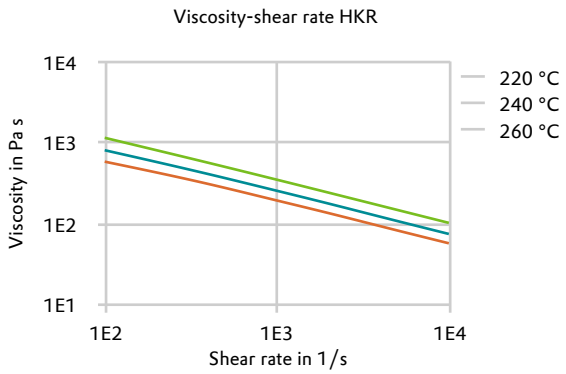
Dissipation factor, 1MHz	**260 / 450**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**41 / 45**	kV/mm	IEC 60243-1
CTI, test solution A, 50 drops value	**600 / 600**	-	IEC 60112
Assessment of the insulation group	**I**	-	DIN EN 60664-1

Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**50 / ***	cm^3/10min	ISO 1133
Temperature	**275 / ***	°C	-
Load	**5 / ***	kg	-
Molding shrinkage, parallel	**0.2 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.7 / ***	%	ISO 294-4, 2577
Mold temperature	**80 / ***	°C	-
Melt temperature	**240 / ***	°C	-

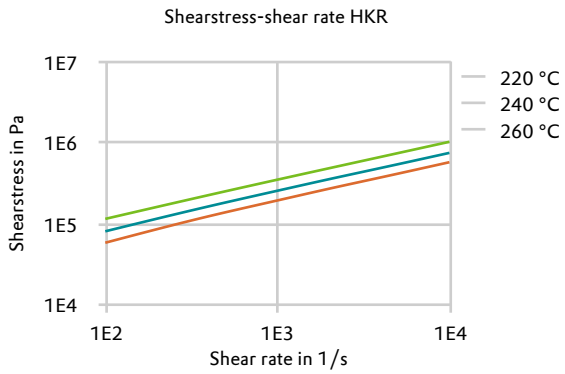
Test specimen production	**dry**	**Unit**	**Test Standard**
Injection Molding, melt temperature	**240**	°C	ISO 294
Injection Molding, mold temperature	**80**	°C	ISO 294
Injection Molding, injection velocity	**200**	mm/s	ISO 294
Injection Molding, pressure at hold	**70**	MPa	ISO 294

Diagrams

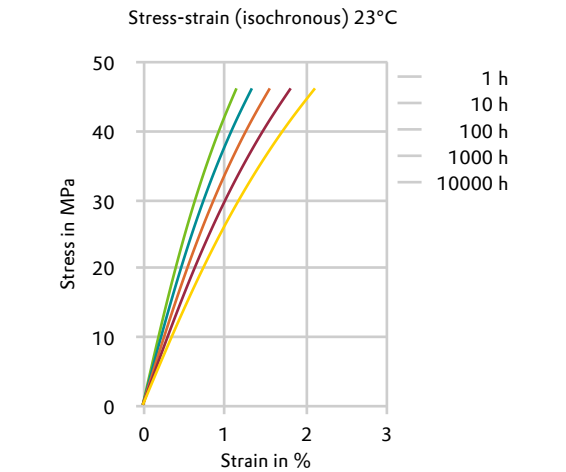
Viscosity-shear rate HKR



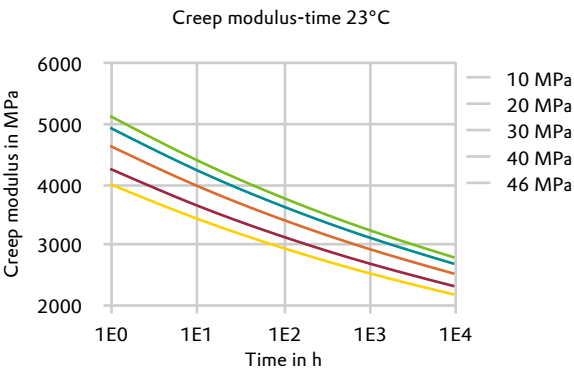
Shearstress-shear rate HKR



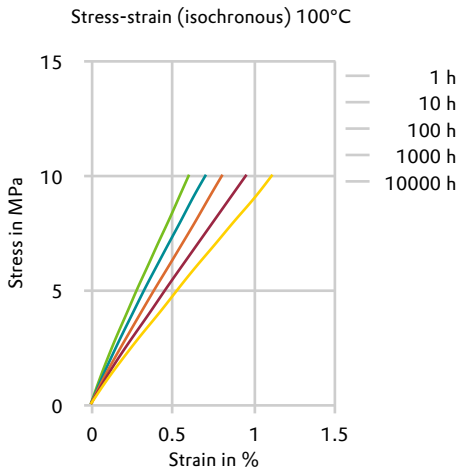
Stress-strain (isochronous) 23°C



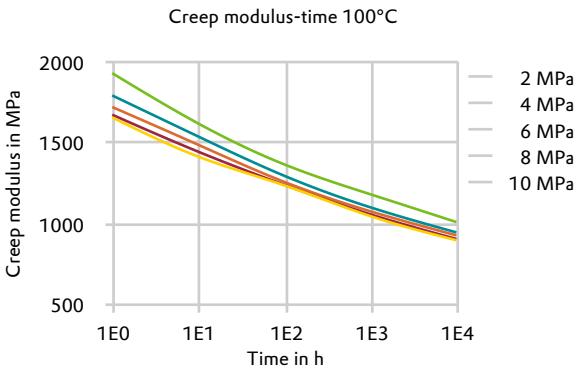
Creep modulus-time 23°C



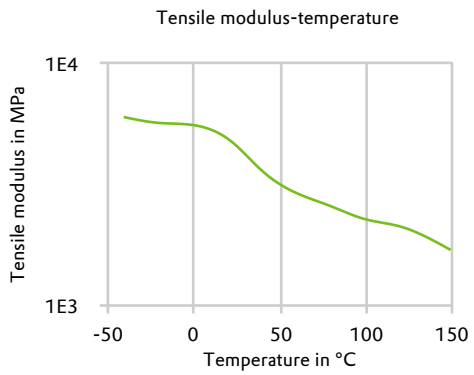
Stress-strain (isochronous) 100°C



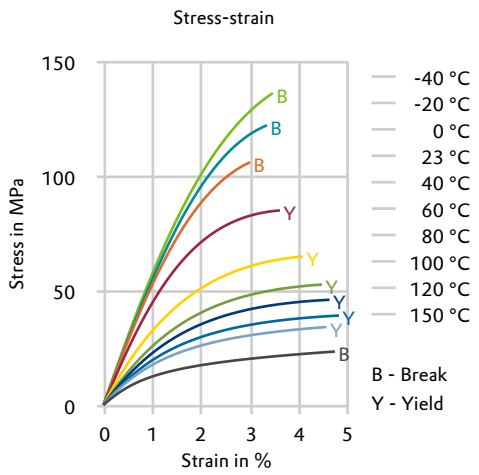
Creep modulus-time 100°C



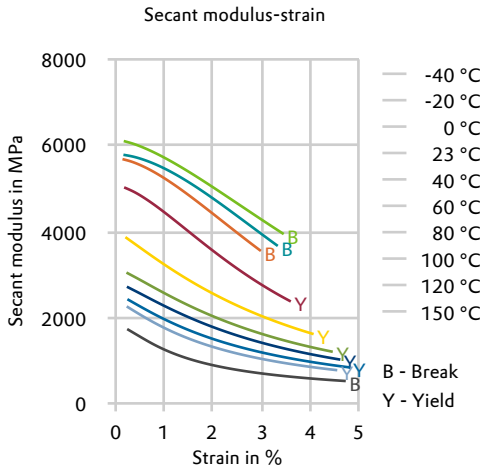
Tensile modulus-temperature



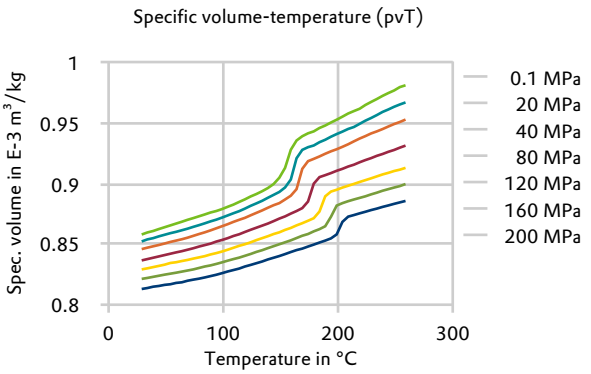
Stress-strain



Secant modulus-strain



Specific volume-temperature (pvT)



Characteristics

Applications
Electrical and Electronical, Encapsulation, General purpose

Color
Natural color

Special Characteristics
High heat resistant, Medium viscosity

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
Density of melt	**1080**	kg/m³	-
Thermal conductivity of melt	**0.26**	W/(m K)	-
Spec. heat capacity of melt	**2640**	J/(kg K)	-
Ejection temperature	**180**	°C	-
Min. mold temperature	**30**	°C	-
Max. mold temperature	**100**	°C	-
Min. melt temperature	**240**	°C	-
Max. melt temperature	**280**	°C	-