

Product Information

# VESTAMID® D18

## MEDIUM-VISCOSITY PA612 RESIN

**VESTAMID® D18** is a medium-viscosity Polyamide 612 compound for extrusion and injection moulding of e.g. monofilaments (toothbrush bristles).

The material based on PA612 absorbs only small amounts of water. Components made of this material therefore show excellent dimensional stability under changing ambient humidity.

VESTAMID® D18 is supplied as cylindrical granules in moisture-proof polyethylene containers ready for processing.

Pigmentation may affect 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

Sustainable, Industry and Engineering, Medical Devices, Sports and Lifestyle

#### Sustainability

Sustainable electricity

#### Processing

Injection molding, Extrusion

#### Delivery form

Pellets, Granules

#### Optics

Translucent

#### Conformity

Food contact

#### Additives

Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	<a href="#">VESTAMID® D</a>	-	ISO 14040, 14044
LCA certifier	<a href="#">TÜV Rheinland</a>	-	ISO 14040, 14044
Blue water consumption	<b>9.9</b>	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	<b>7.2</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	<b>7.2</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	<b>0</b>	Annual crop eq. y	ISO 14040, 14044
GWP savings as compared to 2023 reference	<b>-0.8</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	<b>2200 / 1700</b>	MPa	ISO 527
Tensile strength	<b>57 / -</b>	MPa	ISO 527
Yield stress	<b>57 / 52</b>	MPa	ISO 527
Yield strain	<b>4 / 20</b>	%	ISO 527
Stress at 50% strain	<b>42 / *</b>	MPa	ISO 527
Stress at break	<b>49 / *</b>	MPa	ISO 527
Nominal strain at break, tB	<b>190 / &gt;50</b>	%	ISO 527
Charpy impact strength, +23°C	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, +23°C	<b>5 / 9</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / C</b>	-	-
Charpy notched impact strength, -30°C	<b>6 / 7</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / C</b>	-	-
Flexural modulus, 23°C	<b>2090 / -</b>	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	<b>67 / -</b>	MPa	ISO 178
Flexural strength, 23°C	<b>80 / -</b>	MPa	ISO 178
Flexural strain at flexural strength, 23°C	<b>6.5 / -</b>	%	ISO 178
Flexural stress at break, 23°C	<b>N / -</b>	MPa	ISO 178

Flexural strain at break, 23°C	N / -	%	ISO 178
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Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	215 / *	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	60 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	140 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	211 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	180 / *	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	130 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	120 / *	E-6/K	ISO 11359-1/-2
Melting Temperature	215	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1060 / -	kg/m <sup>3</sup>	ISO 1183
Water absorption	2.7 / *	%	Sim. to ISO 62
Humidity absorption	1 / *	%	Sim. to ISO 62
Density	1060	kg/m <sup>3</sup>	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	3.2 / *	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	>1E13 / -	Ohm*m	IEC 62631-3-1
Relative permittivity, 100Hz	3.8 / -	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.4 / -	-	IEC 62631-2-1
Dissipation factor, 100Hz	260 / -	E-4	IEC 62631-2-1

Dissipation factor, 1MHz	<b>310 / -</b>	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	<b>28 / -</b>	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P50	<b>28 / -</b>	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	<b>600 / -</b>	-	IEC 60112
Assessment of the insulation group	<b>I</b>	-	DIN EN 60664-1

<b>Optical properties</b>	<b>dry</b>	<b>Unit</b>	<b>Test Standard</b>
Color b	<b>0.5</b>	-	CIE

<b>Rheological properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Melt volume-flow rate, MVR	<b>70 / *</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>275 / *</b>	°C	-
Load	<b>5 / *</b>	kg	-
Melt volume-flow rate, MVR	<b>59 / *</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>240 / *</b>	°C	-
Load	<b>5 / *</b>	kg	-
Molding shrinkage, parallel	<b>1.3 / *</b>	%	ISO 294-4, 2577
Molding shrinkage, normal	<b>1.4 / *</b>	%	ISO 294-4, 2577
Mold temperature	<b>80 / *</b>	°C	-
Melt temperature	<b>250 / *</b>	°C	-

<b>Polymer analytics</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Viscosity number	<b>180 / *</b>	cm <sup>3</sup> /g	ISO 307, 1157, 1628
Amino end group	<b>&lt;5</b>	mmol/kg	Evonik standard
Carboxyl end group	<b>95</b>	mmol/kg	Evonik standard

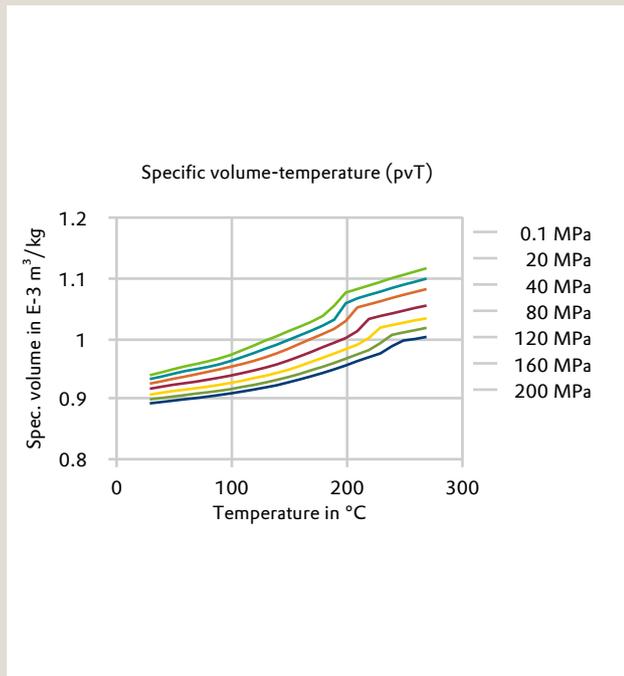
<b>Test specimen production</b>	<b>dry</b>	<b>Unit</b>	<b>Test Standard</b>
Injection Molding, melt temperature	<b>250</b>	°C	ISO 294
Injection Molding, mold temperature	<b>80</b>	°C	ISO 294

# VESTAMID®

Injection Molding, injection velocity	<b>200</b>	mm/s	ISO 294
Injection Molding, pressure at hold	<b>70</b>	MPa	ISO 294

## Diagrams

### Specific volume-temperature (pvT)



## Characteristics

### Processing

Profile extrusion

## 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)

#### 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)

#### Other

- ✓ Ethyl Acetate (23°C)
- ✓ Hydrogen peroxide (23°C)
- ✓ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Min. mold temperature	30	°C	-
Max. mold temperature	100	°C	-
Min. melt temperature	230	°C	-
Max. melt temperature	270	°C	-