VESTAMID®

Product Information

# VESTAMID® DX9330

## MEDIUM VISCOSITY POLYAMIDE 612 RESIN

**VESTAMID® DX9330 NC** is a PA 612 base polymer without any stabilizers and other additives.

VESTAMID® DX9330 NC is suitable for both extrusion as well as injection molding. Usually VESTAMID® DX9330 NC is only used in special cases when additives are not preferable, or processing aids are not necessary, e.g. filament extrusion.

Based on the perfect balance of amino and carboxyl end groups this material is easy to process and to dye. The typical characteristics of PA 612 are moderate water absorption, good dimensional stability and almost unchanged properties at varying ambient humidity.

VESTAMID® DX9330 NC is supplied as cylindrical granules, ready for processing, in moisture-proof bags. The processing temperature should be within a range of 250°C to 290°C.

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.

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.

### Key Features

**Industrial Sector**
Sustainable, Sports and Lifestyle

**Delivery form**
Pellets, Granules

**Sustainability**
Sustainable electricity

**Conformity**
Food contact

**Processing**
Injection molding

**Additives**
Unfilled

| LCA-values | dry | Unit | Test Standard |
|---|---|---|---|
| LCA name of certificate | VESTAMID® D | - | ISO 14040, 14044 |
| LCA certifier | TÜV Rheinland | - | ISO 14040, 14044 |
| Blue water consumption | **9.9** | kg | ISO 14040, 14044 |
| Global Warming Potential incl. bio. C incl. LUC | **7.2** | kg $CO_2$ eq./kg | ISO 14040, 14044 |
| Global Warming Potential excl. bio. C incl. LUC | **7.2** | kg $CO_2$ eq./kg | ISO 14040, 14044 |
| Land use (ReCiPe 2016) | **0** | Annual crop eq. y | ISO 14040, 14044 |
| GWP savings as compared to 2023 reference | **-0.8** | kg $CO_2$ eq./kg | ISO 14040, 14044 |

| Mechanical properties ISO | dry / cond | Unit | Test Standard |
|---|---|---|---|
| Tensile modulus | **2200 / -** | MPa | ISO 527 |
| Tensile strength | **58 / -** | MPa | ISO 527 |
| Yield stress | **58 / -** | MPa | ISO 527 |
| Yield strain | **4 / -** | % | ISO 527 |
| Stress at 50% strain | **42 / -** | MPa | ISO 527 |
| Stress at break | **44 / -** | MPa | ISO 527 |
| Nominal strain at break, tB | **>50 / -** | % | ISO 527 |
| Charpy impact strength, +23°C | **N / -** | kJ/m² | ISO 179/1eU |
| Charpy impact strength, -30°C | **N / -** | kJ/m² | ISO 179/1eU |
| Charpy notched impact strength, +23°C | **4.5 / -** | kJ/m² | ISO 179/1eA |
| Type of failure | **C / -** | - | - |
| Charpy notched impact strength, -30°C | **4.5 / -** | kJ/m² | ISO 179/1eA |
| Type of failure | **C / -** | - | - |
| Flexural modulus, 23°C | **2060 / -** | MPa | ISO 178 |
| Flexural stress at conv. deflection, 23°C | **69 / -** | MPa | ISO 178 |
| Flexural strength, 23°C | **83 / -** | MPa | ISO 178 |
| Flexural strain at flexural strength, 23°C | **6 / -** | % | ISO 178 |
| Flexural stress at break, 23°C | **N / -** | MPa | ISO 178 |

| | | | |
|---|---|---|---|
| Flexural strain at break, 23°C | **N / -** | % | ISO 178 |

| **Thermal properties** | **dry / cond** | **Unit** | **Test Standard** |
|---|---|---|---|
| Melting temperature | **215 / *** | °C | ISO 11357-1/-3 |
| Glass transition temperature, DSC | **44 / *** | °C | ISO 11357-1/-2 |
| Temp. of deflection under load A, 1.80 MPa | **58 / *** | °C | ISO 75-1/-2 |
| Temp. of deflection under load B, 0.45 MPa | **149 / *** | °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 |
| Melting Temperature | **215** | °C | ASTM D 3418 |

| **Physical properties** | **dry / cond** | **Unit** | **Test Standard** |
|---|---|---|---|
| Density | **1060 / -** | kg/m³ | ISO 1183 |
| Water absorption | **2.8 / *** | % | Sim. to ISO 62 |
| Humidity absorption | **1.4 / *** | % | Sim. to ISO 62 |
| Moisture content | **0.15 / -** | Gew.-% | ISO 15512 |
| Density | **1060** | kg/m³ | ASTM D 792 |

| **Optical properties** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|
| Color b | **-0.01** | - | CIE |

| **Rheological properties** | **dry / cond** | **Unit** | **Test Standard** |
|---|---|---|---|
| Melt volume-flow rate, MVR | **69 / *** | cm³/10min | ISO 1133 |
| Temperature | **240 / *** | °C | - |
| Load | **10 / *** | kg | - |
| Molding shrinkage, parallel | **1.4 / *** | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | **1.4 / *** | % | ISO 294-4, 2577 |
| Mold temperature | **80 / *** | °C | - |
| Melt temperature | **250 / *** | °C | - |

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| Polymer analytics | dry / cond | Unit | Test Standard |
|---|---|---|---|
| Viscosity number | **155 / *** | $cm^3/g$ | ISO 307, 1157, 1628 |
| Amino end group | **31** | mmol/kg | Evonik standard |
| Carboxyl end group | **94** | mmol/kg | Evonik standard |

| Test specimen production | dry | Unit | Test Standard |
|---|---|---|---|
| Injection Molding, melt temperature | **250** | °C | ISO 294 |
| Injection Molding, mold temperature | **80** | °C | ISO 294 |
| Injection Molding, injection velocity | **200** | mm/s | ISO 294 |

## Characteristics

**Special Characteristics**
Medium viscosity

**Color**
Natural color