VESTAMID®

Product Information

# VESTAMID® LC-GF23 BK

## GLASS FIBER REINFORCED PA12 COMPOUND WITH HIGH STRAIN AT BREAK FOR INJECTION MOLDING

**VESTAMID® LC-GF23 BK** is a semi-crystalline, heat- and UV-stabilized compound based on PA 12 from which connectors are preferrably produced by injection molding. The polyamide compound is especially suitable for the automotive and mobility sector. The semi-crystalline molding compound absorbs only small amounts of water. Components made from **VESTAMID® LC-GF23 BK** therefore have excellent dimensional accuracy with changing ambient humidity and constant general chemical stability.

The semi-crystalline polymer is characterized by its outstanding mechanical and thermal load capacity.

Molding or process-specific deviations from the recommended processing parameters are possible to a certain extent if the cavity or the process requires it.

**VESTAMID® LC-GF23 BK** is delivered as cylindrical-granules in ready-to-process condition, in moisture-tight packaging.

The results presented were generated from a small number of production lots. They are therefore provisional and not yet the result of a statistical analysis.

The values presented are typical or average values, they do not constitute a specification.

### Key Features

**Industrial Sector**
Automotive and Mobility, Industry and Engineering

**Processing**
Injection molding

**Delivery form**
Pellets, Granules

**Optics**
Laser absorbing

**Resistance to**
Heat (thermal stability), UV / light / weathering

**Electrical**
Insulating

**Conformity**
Automotive

**Additives**
Glass fibers

| Mechanical properties ISO | dry | Unit | Test Standard |
|---|---|---|---|
| Tensile modulus | **5740** | MPa | ISO 527 |
| Yield stress | **110** | MPa | ISO 527 |
| Yield strain | **4** | % | ISO 527 |

| | | | |
|---|---|---|---|
| Stress at break | **104** | MPa | ISO 527 |
| Strain at break, B | **7** | % | ISO 527 |
| Nominal strain at break, tB | **7** | % | ISO 527 |
| Charpy impact strength, +23°C | **89** | kJ/m² | ISO 179/1eU |
| Type of failure | **C** | - | - |
| Charpy impact strength, -30°C | **97** | kJ/m² | ISO 179/1eU |
| Type of failure | **C** | - | - |
| Charpy impact strength, -40°C | **95** | kJ/m² | ISO 179/1eU |
| Type of failure | **C** | - | - |
| Charpy notched impact strength, +23°C | **21** | kJ/m² | ISO 179/1eA |
| Type of failure | **C** | - | - |
| Charpy notched impact strength, -30°C | **14** | kJ/m² | ISO 179/1eA |
| Type of failure | **C** | - | - |
| Charpy notched impact strength, -40°C | **13** | kJ/m² | ISO 179/1eA |
| Type of failure | **C** | - | - |

| **Thermal properties** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|
| Melting temperature | **177** | °C | ISO 11357-1/-3 |
| Glass transition temperature, DSC | **42** | °C | ISO 11357-1/-2 |
| Temp. of deflection under load A, 1.80 MPa | **166** | °C | ISO 75-1/-2 |
| Temp. of deflection under load B, 0.45 MPa | **179** | °C | ISO 75-1/-2 |
| Vicat softening temperature A, 10 N, 50 K/h | **177** | °C | ISO 306 |
| Vicat softening temperature B, 50 N, 50 K/h | **174** | °C | ISO 306 |

| **Physical properties** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|
| Density | **1190** | kg/m³ | ISO 1183 |
| Moisture content | **0.021** | Gew.-% | ISO 15512 |
| Shore D hardness | **79** | - | ISO 7619-1 |

| Rheological properties | dry | Unit | Test Standard |
|---|---|---|---|
| Melt volume-flow rate, MVR | **27** | $cm^3$/10min | ISO 1133 |
| Temperature | **275** | °C | - |
| Load | **5** | kg | - |
| Molding shrinkage, parallel | **0.3** | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | **0.8** | % | ISO 294-4, 2577 |
| Mold temperature | **80** | °C | - |
| Melt temperature | **260** | °C | - |
| Flow length, flow spiral | **445** | mm | Evonik standard |
| Flow front velocity, flow spiral | **950** | mm/s | Evonik standard |
| Flow cross section | **6 x 2** | $mm^2$ | Evonik standard |
| Mold temperature, flow spiral | **250** | °C | Evonik standard |
| Melt temperature, flow spiral | **80** | °C | Evonik standard |
| Injection pressure, flow spiral | **1500** | bar | Evonik standard |
| Flow length, flow spiral | **557** | mm | Evonik standard |
| Flow front velocity, flow spiral | **950** | mm/s | Evonik standard |
| Flow cross section | **6 x 2** | $mm^2$ | Evonik standard |
| Mold temperature, flow spiral | **250** | °C | Evonik standard |
| Melt temperature, flow spiral | **80** | °C | Evonik standard |
| Injection pressure, flow spiral | **2000** | bar | Evonik standard |

| Polymer analytics | dry | Unit | Test Standard |
|---|---|---|---|
| Corrected Viscosity number | **166** | $cm^3/g$ | ISO 307, 1157, 1628 |
| Rel. solution viscosity | **1.83** | - | ISO 307 |
| Amino end group | **57** | mmol/kg | Evonik standard |
| Carboxyl end group | **<20** | mmol/kg | Evonik standard |

## Characteristics

**Applications**
Quick-connectors

**Special Characteristics**
Halogen-free, Semi-crystalline, U.V. stabilized, Medium viscosity

**Features**
Non-corrosive

**Color**
Black

**Additives**
Light stabilizer

**Delivery form**
Cylindrical pellets

**Chemical Resistance**
Fuel resistance

| Processing Recommendation Injection Molding | dry | Unit | Test Standard |
|---|---|---|---|
| Pre-drying - Temperature | **80 - 100** | °C | - |
| Pre-drying - Time | **2 - 4** | h | - |
| Processing humidity | **⩽0.1** | % | - |
| Melt temperature | **240 - 280** | °C | - |
| Mold temperature | **60 - 100** | °C | - |
| Feed temperature | **40 - 60** | °C | - |
| Zone 1 | **260** | °C | - |
| Zone 2 | **255** | °C | - |
| Zone 3 | **250** | °C | - |
| Zone 4 | **50** | °C | - |
| Nozzle temperature | **255** | °C | - |
| Screw speed | **127** | rpm | - |
| Circumferential speed | **50 - 200** | mm/s | - |
| Back pressure | **0.3 - 0.8** | MPa | - |
| Holding pressure | **7** | MPa | - |