

Product Information

**VESTAMID® X7099**

**ESPECIALLY DEVELOPED FOR THE PRODUCTION OF PLASTIC-RUBBER COMPOSITES ACCORDING TO THE EVONIK INDUSTRIES K+K PROCESS**



**VESTAMID® X7099 NC** is a PA 612 resin especially developed for the production of plastic-rubber composites.

Parts made from VESTAMID® X7099 can be, without the use of adhesives or adhesion promoters, covulcanized with rubbers, such as XNBR, HNBR, AEM or FPM ("direct-bonding to rubber").

As a partially crystalline resin VESTAMID® X7099 exhibits an outstanding chemical resistance, especially against fuels, oils and fats. In comparison to resins based on PA 66 or PA 6 VESTAMID® X7099 has a distinctly lower water absorption.

VESTAMID® X7099 is supplied as cylindrical pellets ready for use in a moisture-proof packaging.

The use of colorants may affect 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

**Delivery form**

Pellets, Granules

**Sustainability**

Sustainable electricity

**Resistance to**

Heat (thermal stability)

**Processing**

Injection molding

**Additives**

Glass fibers

**LCA-values**

LCA name of certificate

dry

[VESTAMID® D.GF](#)

Unit

-

Test Standard

ISO 14040, 14044

LCA certifier

[TÜV Rheinland](#)

-

ISO 14040, 14044

Blue water consumption	<b>20.1</b>	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	<b>5.8</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	<b>5.8</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	<b>0.1</b>	Annual crop eq. y	ISO 14040, 14044
GWP savings as compared to 2023 reference	<b>-2.0</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	<b>5800 / -</b>	MPa	ISO 527
Tensile strength	<b>125 / -</b>	MPa	ISO 527
Yield stress	<b>125 / -</b>	MPa	ISO 527
Yield strain	<b>3.9 / -</b>	%	ISO 527
Stress at break	<b>120 / -</b>	MPa	ISO 527
Nominal strain at break, tB	<b>4.4 / -</b>	%	ISO 527
Charpy impact strength, +23°C	<b>80 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Type of failure	<b>C / -</b>	-	-
Charpy impact strength, -30°C	<b>60 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Type of failure	<b>C / -</b>	-	-
Charpy notched impact strength, +23°C	<b>10 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / -</b>	-	-
Charpy notched impact strength, -30°C	<b>7 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / -</b>	-	-
Flexural modulus, 23°C	<b>5200 / -</b>	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	<b>165 / -</b>	MPa	ISO 178
Flexural strength, 23°C	<b>192 / -</b>	MPa	ISO 178
Flexural strain at flexural strength, 23°C	<b>5.5 / -</b>	%	ISO 178
Flexural stress at break, 23°C	<b>189 / -</b>	MPa	ISO 178
Flexural strain at break, 23°C	<b>5.8 / -</b>	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	215 / *	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	190 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	210 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	215 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	205 / *	°C	ISO 306
Melting Temperature	215	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1200 / -	kg/m <sup>3</sup>	ISO 1183
Water absorption	2 / *	%	Sim. to ISO 62
Humidity absorption	0.8 / *	%	Sim. to ISO 62
Density	1200	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	1E12 / -	Ohm*m	IEC 62631-3-1
Relative permittivity, 100Hz	4.4 / -	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.9 / -	-	IEC 62631-2-1
Dissipation factor, 100Hz	650 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	430 / -	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/P50	38 / -	kV/mm	Sim. to IEC 60243-1

Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	<b>0.6 / *</b>	%	ISO 294-4, 2577
Molding shrinkage, normal	<b>0.9 / *</b>	%	ISO 294-4, 2577
Mold temperature	<b>80 / *</b>	°C	-
Melt temperature	<b>250 / *</b>	°C	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	<b>260</b>	°C	ISO 294
Injection Molding, mold temperature	<b>80</b>	°C	ISO 294
Injection Molding, injection velocity	<b>200</b>	mm/s	ISO 294

### Characteristics

#### Processing

K&K process

#### Special Characteristics

Semi-crystalline, High heat resistant

#### Color

Natural color

#### Additives

Heat stabilizer

#### Chemical Resistance

Grease resistance, Oil resistance, Fuel resistance, General chemical resistance