

## Product Information

## TROGAMID® CX7323 NC

MICROCRYSTALLINE, PERMANENTLY TRANSPARENT  
POLYAMIDE

**TROGAMID® CX7323** is a microcrystalline transparent polyamide for the manufacture of parts according to the injection molding procedure.

The crystallites are so small, that they do not scatter visible light, and the material appears transparent to the human eye. The crystalline structure causes the excellent crack resistance for this polymer.

TROGAMID® CX7323 is supplied as spherical pellets in polyethylene packaging.

Deviations of molds or in processing are possible to a certain extent, if they are required by the cavity or the process itself.

Pigmentation may affect values.

For information about processing of TROGAMID®, please follow the general commendations about "[Processing of TROGAMID® compounds](#)".

FOR FURTHER INFORMATION PLEASE CONTACT US AT [EVONIK-HP@EVONIK.COM](mailto:EVONIK-HP@EVONIK.COM)  
OR VISIT OUR PRODUCT AT [WWW.TROGAMID.COM](http://WWW.TROGAMID.COM)

## Key Features

## Industrial Sector

Automotive and Mobility, Aircraft and Aerospace, Industry and Engineering, Optics, Sports and Lifestyle

## Processing

Injection molding, Extrusion

## Optics

Transparent, High gloss

## Resistance to

Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering, Wear / abrasion, Fatigue resistance, Oil / fuels

## Electrical

Insulating

## Conformity

Food contact, Drinking water contact, Automotive

## Additives

Unfilled

## LCA-values

LCA name of certificate

dry

[TROGAMID®  
microcrystalline](#)

Unit

-

Test Standard

ISO 14040, 14044

LCA certifier

[TÜV Rheinland](#)

-

ISO 14040, 14044

Blue water consumption	<b>13.1</b>	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	<b>7.7</b>	kg CO <sub>2</sub> eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	<b>7.7</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

<b>Mechanical properties ISO</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Tensile modulus	<b>1400 / -</b>	MPa	ISO 527
Tensile strength	<b>60 / -</b>	MPa	ISO 527
Yield stress	<b>60 / -</b>	MPa	ISO 527
Yield strain	<b>8 / -</b>	%	ISO 527
Stress at 50% strain	<b>40 / -</b>	MPa	ISO 527
Stress at break	<b>60 / -</b>	MPa	ISO 527
Nominal strain at break, etB	<b>160 / -</b>	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	<b>* / 1300</b>	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	<b>* / 700</b>	MPa	ISO 899-1
Charpy impact strength, +23°C	<b>N / -</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, 0°C	<b>N / -</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	<b>N / -</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, +23°C	<b>11 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / -</b>	-	-
Charpy notched impact strength, 0°C	<b>12 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / -</b>	-	-
Charpy notched impact strength, -30°C	<b>11 / -</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C / -</b>	-	-
Flexural modulus, 23°C	<b>1700 / -</b>	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	<b>50 / -</b>	MPa	ISO 178
Flexural strength, 23°C	<b>90 / -</b>	MPa	ISO 178
Flexural strain at flexural strength, 23°C	<b>9 / -</b>	%	ISO 178

Flexural strain at break, 23°C	N / -	%	ISO 178
Pressure cycle test on hollow part	200000 / *	cycles	EN 13443-1
Taber Abrasion Resistance, S33, 2x 500g	< 25 / -	mg/100 cycles	DIN 53754

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	250 / *	°C	ISO 11357-1/-3
Glass transition temperature, DSC	140 / *	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	108 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	122 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	137 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	130 / *	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	90 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	90 / *	E-6/K	ISO 11359-1/-2
Melting Temperature	250	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1020 / -	kg/m <sup>3</sup>	ISO 1183
Water absorption	3.5 / *	%	Sim. to ISO 62
Humidity absorption	1.5 / *	%	Sim. to ISO 62
Shore D hardness	81 <sup>[b]</sup> / -	-	ISO 7619-1
Ball indentation hardness	110 / -	MPa	ISO 2039-1
Density	1020	kg/m <sup>3</sup>	ASTM D 792

b: 3 seconds

Burning Behav.	dry / cond	Unit	Test Standard
UL Yellow Card available	yes / *	-	-
Burning behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	-
Yellow Card available	yes / *	-	-

Burnin behav. at thickness h	<b>HB / *</b>	class	IEC 60695-11-10
Thickness tested	<b>3.0 / *</b>	mm	-
Burning behav. at thickness h	<b>HB / *</b>	class	IEC 60695-11-10
Thickness tested	<b>0.8 / *</b>	mm	-
Yellow Card available	<a href="#">yes</a> / *	-	-
Burnin behav. at thickness h	<b>HB / *</b>	class	IEC 60695-11-10
Thickness tested	<b>0.4 / *</b>	mm	-
Glow Wire Flammability Index (GWFI)	<b>960</b>	°C	IEC 60695-2-12
GWFI - thickness tested	<b>1</b>	mm	-
Glow Wire Ignition Temperature (GWIT)	<b>800</b>	°C	IEC 60695-2-13
GWIT - thickness tested	<b>1</b>	mm	-

<b>Electrical properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Volume resistivity, ρV	<b>&gt;1E13 / -</b>	Ohm*m	IEC 62631-3-1
Surface resistivity, σE	<b>* / 1E13</b>	Ohm	IEC 62631-3-2
Surface resistance, RSA	<b>1E13 / -</b>	Ohm	IEC 62631-3-2
Surface resistivity, σA	<b>1E14 / -</b>	Ohm per square	IEC 62631-3-2
Relative permittivity, 100Hz	<b>3.6 / -</b>	-	IEC 62631-2-1
Relative permittivity, 1MHz	<b>3.2 / -</b>	-	IEC 62631-2-1
Dissipation factor, 100Hz	<b>115 / -</b>	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	<b>325 / -</b>	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	<b>27 / -</b>	kV/mm	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>Rheological properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Melt volume-flow rate, MVR	<b>8.2 / *</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>280 / *</b>	°C	-

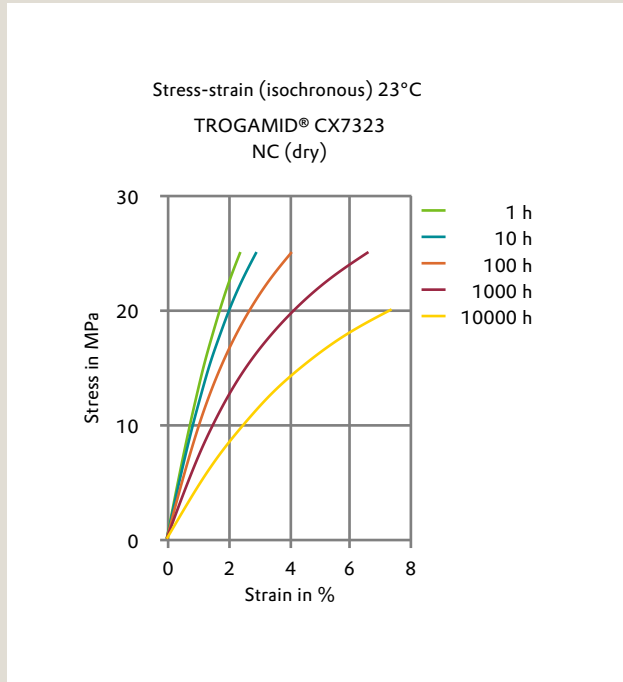
Load	<b>2.16 / *</b>	kg	-
Molding shrinkage, parallel	<b>0.7 / *</b>	%	ISO 294-4, 2577
Molding shrinkage, normal	<b>0.8 / *</b>	%	ISO 294-4, 2577
Mold temperature	<b>80 / *</b>	°C	-
Melt temperature	<b>280 / *</b>	°C	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	<b>155 / *</b>	cm <sup>3</sup> /g	ISO 307, 1157, 1628

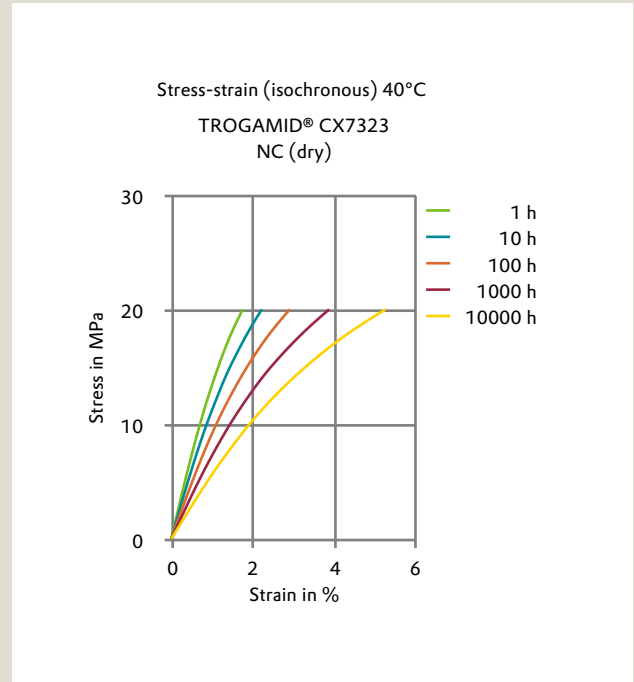
Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	<b>280</b>	°C	ISO 294
Injection Molding, mold temperature	<b>80</b>	°C	ISO 294
Injection Molding, injection velocity	<b>200</b>	mm/s	ISO 294
Injection Molding, pressure at hold	<b>70</b>	MPa	ISO 294

Diagrams

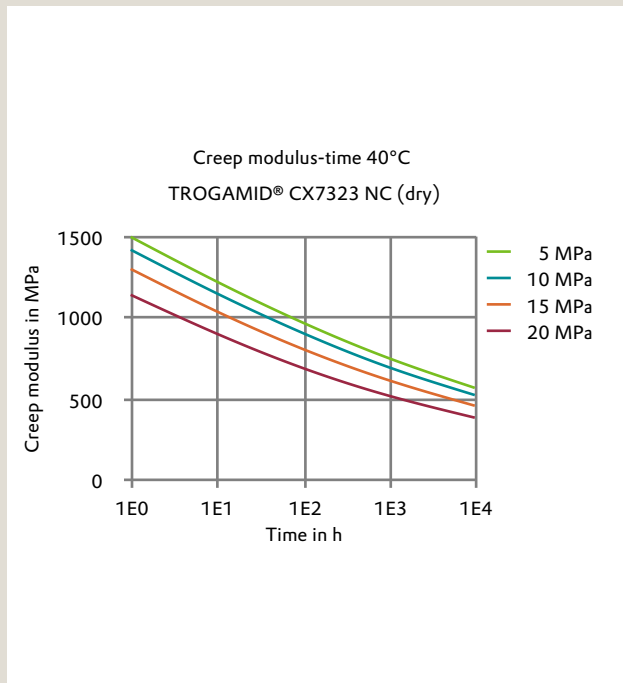
Stress-strain (isochronous) 23°C



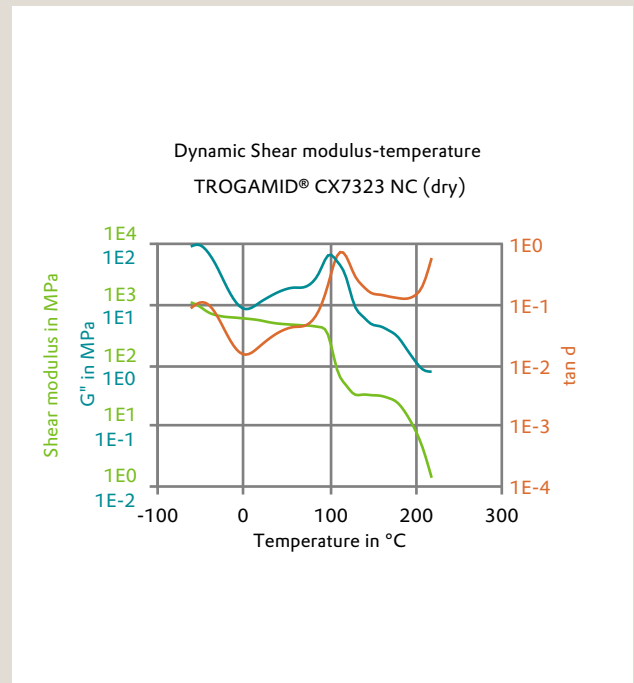
Stress-strain (isochronous) 40°C



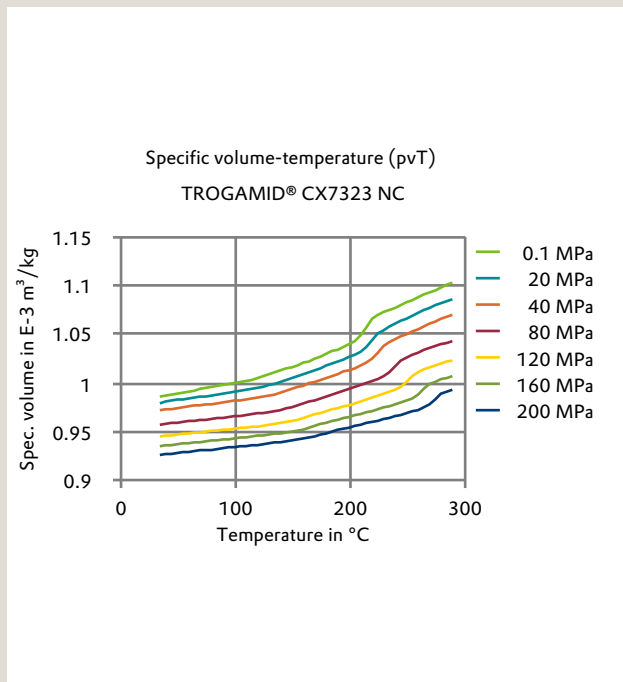
Creep modulus-time 40°C



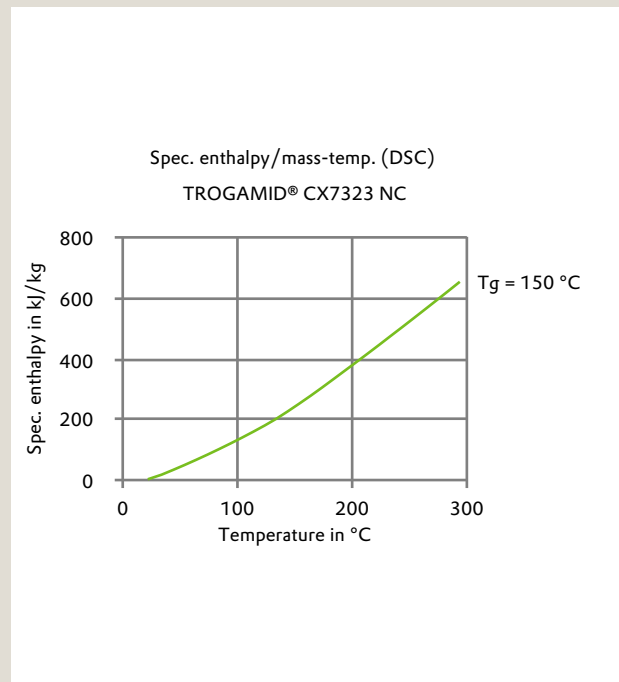
Dynamic Shear modulus-temperature



## Specific volume-temperature (pvT)



## Spec. enthalpy/mass-temp. (DSC)



## Characteristics

### Applications

Electrical and Electronical, Encapsulation, General purpose, (Sun-) glasses, Hygiene and cosmetics

### Processing

Film extrusion, Profile extrusion, Sheet extrusion

### Special Characteristics

Environmental stress crack resistance, Light-stabilized, U.V. stabilized, Medium viscosity

### Regulatory

Water contact KTW-BWGL, Water contact DIN EN 16421

### Delivery form

Spherical pellets

## Chemical Media Resistance

### Acids

✘ Sulfuric Acid (38% by mass) (23°C)

### Alcohols

✔ Isopropyl alcohol (23°C)

✔ Methanol (23°C)

✓ Ethanol (23°C)

#### Hydrocarbons

✓ Toluene (23°C)

#### Ketones

✓ Acetone (23°C)

#### Mineral oils

✓ SAE 10W40 multigrade motor oil (23°C)

#### Standard Fuels

✓ 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)

#### Other

✓ Ethyl Acetate (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Density of melt	<b>900</b>	kg/m <sup>3</sup>	-
Thermal conductivity of melt	<b>0.25</b>	W/(m K)	-
Spec. heat capacity of melt	<b>2490</b>	J/(kg K)	-
Eff. thermal diffusivity	<b>1.12E-7</b>	m <sup>2</sup> /s	-
Ejection temperature	<b>100</b>	°C	-
Min. mold temperature	<b>60</b>	°C	-
Max. mold temperature	<b>100</b>	°C	-
Min. melt temperature	<b>280</b>	°C	-
Max. melt temperature	<b>300</b>	°C	-



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