

Product Information

TROGAMID® CX7323 NC

**MICROCRYSTALLINE, PERMANENTLY TRANSPARENT
POLYAMIDE**



TROGAMID® CX7323 is a microcrystalline transparent polyamide for the manufacture of parts according 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.

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	12.4	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	7.8	kg CO ₂ eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	7.8	kg CO ₂ eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	0	Annual crop eq. y	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	203000 / -	psi	ISO 527
Tensile strength	8700 / -	psi	ISO 527
Yield stress	8700 / -	psi	ISO 527
Yield strain	8 / -	%	ISO 527
Stress at 50% strain	5800 / -	psi	ISO 527
Stress at break	8700 / -	psi	ISO 527
Nominal strain at break, tB	160 / -	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	* / 189000	psi	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	* / 102000	psi	ISO 899-1
Charpy impact strength, +23°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy impact strength, 0°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy impact strength, -30°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy notched impact strength, +23°C	5.23 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Charpy notched impact strength, 0°C	5.71 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Charpy notched impact strength, -30°C	5.23 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Flexural modulus, 23°C	247000 / -	psi	ISO 178
Flexural stress at conv. deflection, 23°C	7250 / -	psi	ISO 178
Flexural strength, 23°C	13100 / -	psi	ISO 178

Flexural strain at flexural strength, 23°C	9 / -	%	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	482 / *	°F	ISO 11357-1/-3
Glass transition temperature, DSC	284 / *	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	226 / *	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	252 / *	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	279 / *	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	266 / *	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	5.0E-5 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	5.0E-5 / *	in/in/°F	ISO 11359-1/-2
Melting Temperature	482	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1.02 / -	g/cm ³	ISO 1183
Water absorption	3.5 / *	%	Sim. to ISO 62
Humidity absorption	1.5 / *	%	Sim. to ISO 62
Shore D hardness	81 ^[b] / -	-	ISO 7619-1
Ball indentation hardness	16000 / -	psi	ISO 2039-1
Density	1.02	g/cm ³	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	0.0591 / *	in	-

Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.1181 / *	in	-
Burning behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0315 / *	in	-
Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0157 / *	in	-
Glow Wire Flammability Index (GWFI)	1760	°F	IEC 60695-2-12
GWFI - thickness tested	0.0394	in	-
Glow Wire Ignition Temperature (GWIT)	1470	°F	IEC 60695-2-13
GWIT - thickness tested	0.0394	in	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	>1E13 / -	Ohm*m	IEC 62631-3-1
Surface resistivity, E	* / 1E13	Ohm	IEC 62631-3-2
Surface resistance, RSA	1E13 / -	Ohm	IEC 62631-3-2
Surface resistivity, A	1E14 / -	Ohm/sq	IEC 62631-3-2
Relative permittivity, 100Hz	3.6 / -	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.2 / -	-	IEC 62631-2-1
Dissipation factor, 100Hz	115 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	325 / -	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	686 / -	kV/in	IEC 60243-1
CTI, test solution A, 50 drops value	600 / -	-	IEC 60112
Assessment of the insulation group	I	-	DIN EN 60664-1

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	8.2 / *	cm ³ /10min	ISO 1133
Temperature	280 / *	°C	-
Load	2.16 / *	kg	-

TROGAMID® CX

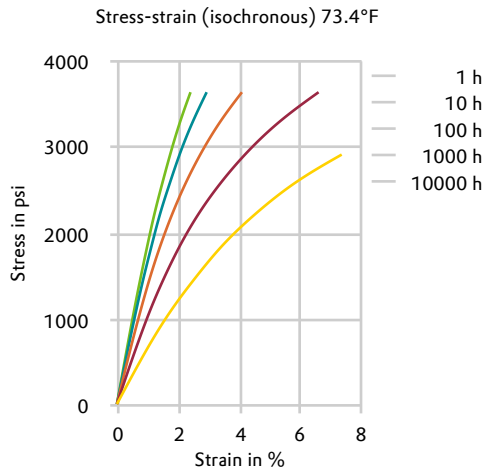
Molding shrinkage, parallel	0.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / *	%	ISO 294-4, 2577
Mold temperature	176 / *	°F	-
Melt temperature	536 / *	°F	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	4290 / *	in ³ /lb	ISO 307, 1157, 1628

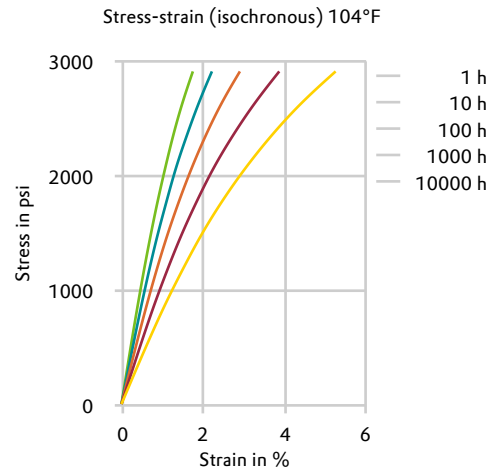
Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	536	°F	ISO 294
Injection Molding, mold temperature	176	°F	ISO 294
Injection Molding, injection velocity	7.87	in/s	ISO 294
Injection Molding, pressure at hold	10200	psi	ISO 294

Diagrams

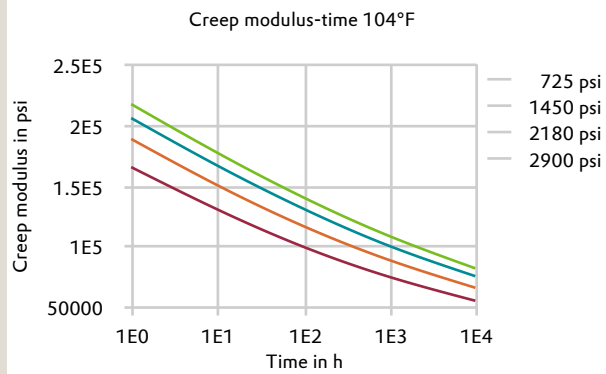
Stress-strain (isochronous) 73°F



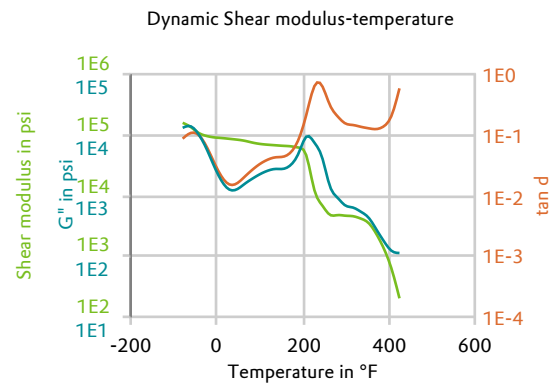
Stress-strain (isochronous) 104°F



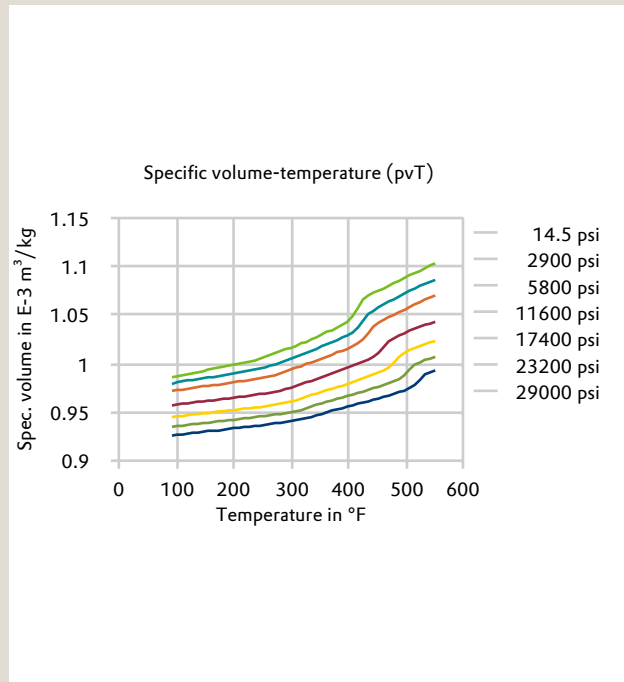
Creep modulus-time 104°F



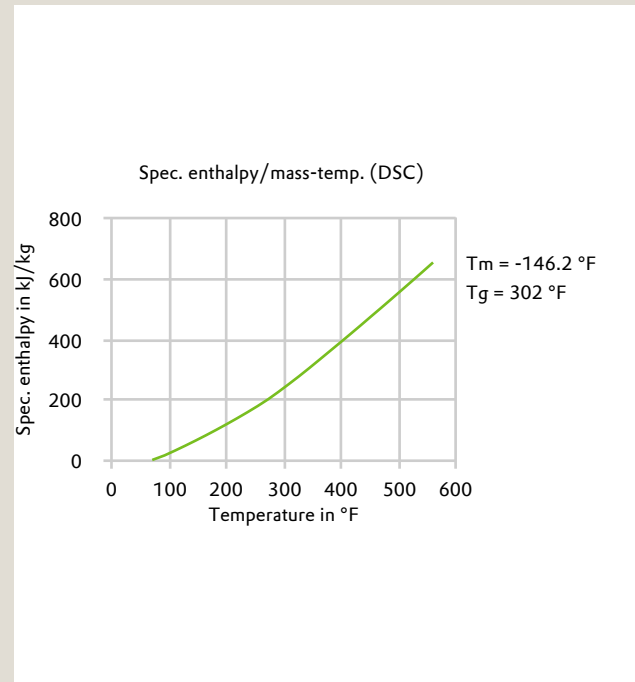
Dynamic Shear modulus-temperature



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, Water contact WRAS, Water contact ACS

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	56.2	lb/ft ³	-
Thermal conductivity of melt	1.73	BTU in/(hr ft ² °F)-	-
Spec. heat capacity of melt	0.936	BTU/(lb·F)	-
Eff. thermal diffusivity	0	m ² /s	-
Ejection temperature	212	°F	-
Min. mold temperature	140	°F	-
Max. mold temperature	212	°F	-
Min. melt temperature	536	°F	-
Max. melt temperature	572	°F	-