Product Information

TROGAMID® CX9704 NC

TRANSPARENT, AMORPHOUS POLYAMIDE FOR INJECTION MOLDING

TROGAMID® CX9704 is an amorphous and transparent polyamide for the manufacture of parts in the optical industry, like lenses according the injection molding procedure.

TROGAMID® CX9704 is supplied as spherical pellets in moisture-proof packaging.

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
OR VISIT OUR PRODUCT AT WWW.TROGAMID.COM

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile Modulus	**1500 / -**	MPa	ISO 527
Tensile Strength	**60 / -**	MPa	ISO 527
Yield stress	**60 / -**	MPa	ISO 527
Yield strain	**8 / -**	%	ISO 527
Stress at 50% strain	**40 / -**	MPa	ISO 527
Stress at break	**50 / -**	MPa	ISO 527
Nominal strain at break, εtB	**>50 / -**	%	ISO 527
Charpy impact strength, +23°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, 0°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**10 / 7.8**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, 0°C	**11 / -**	kJ/m²	ISO 179/1eA

Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**10 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**1460 / -**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**53 / -**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**8 / -**	%	ISO 178
Flexural stress at break, 23°C	**N / -**	MPa	ISO 178
Flexural strain at break, 23°C	**N / -**	%	ISO 178
Flexural modulus, var. temp.	**1500 / -**	MPa	ISO 178
Flexural stress at conv. deflection, var. temp.	**50 / ***	MPa	ISO 178
Flexural strength, var. temp.	**90 / ***	MPa	ISO 178
Flexural strain at flexural strength, var. temp.	**10 / ***	%	ISO 178
Flexural strain at break, var. temp.	**N / ***	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Glass transition temperature	**132 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**102 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**120 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**132 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**125 / ***	°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

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Water absorption	**3.5 / ***	%	Sim. to ISO 62
Humidity absorption	**1.5 / ***	%	Sim. to ISO 62
Density	**1020 / -**	kg/m³	ISO 1183
Shore D hardness	**81**[b] **/ -**	-	ISO 7619-1

Ball indentation hardness	**110 / -**	MPa	ISO 2039-1
Density	**1020**	kg/m³	ASTM D 792

b: 3 seconds

Burning Behav.	dry / cond	Unit	Test Standard
Burning behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.8 / ***	mm	-
Burning behav. at 1.5 mm nom. thickn.	**HB / ***	class	IEC 60695-11-10
Thickness tested	**1.6 / ***	mm	-
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
GWFI - thickness tested (1)	**1**	mm	-
Glow Wire Ignition Temperature (GWIT)	**825**	°C	IEC 60695-2-13
GWIT - thickness tested (1)	**1**	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Relative permittivity, 100Hz	**3.4 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.3 / -**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**130 / -**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**215 / -**	E-4	IEC 62631-2-1
Volume resistivity, ρV	**1E13 / -**	Ohm*m	IEC 62631-3-1
Surface resistance, RSD	**1E14 / -**	Ohm	IEC 62631-3-2
Surface resistance , RSA	**1E14 / -**	Ohm	IEC 62631-3-2
Surface resistivity, σA	**1E15 / -**	Ohm per square	IEC 62631-3-2
CTI, test solution A, 50 drops value	**600 / -**	-	IEC 60112

Optical properties	dry	Unit	Test Standard
Haze	**2**	%	ASTM D 1003
Haze Thickness tested	**2**	mm	-
Light Transmittance	**92**	%	ASTM D 1003

Light Transmittance Thickness tested	**2**	mm	ASTM D 1003

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**30 / ***	cm^3/10min	ISO 1133
Temperature	**275 / ***	°C	-
Load	**5 / ***	kg	-
Molding shrinkage, parallel	**0.5 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.6 / ***	%	ISO 294-4, 2577
Mold temperature	**80 / ***	°C	-
Melt temperature	**280 / ***	°C	-
Flow length, flow spiral	**315**	mm	Evonik standard
Flow cross section	**6 x 2**	mm^2	Evonik standard
Mold temperature, flow spiral	**80**	°C	Evonik standard
Melt temperature, flow spiral	**280**	°C	Evonik standard
Injection pressure, flow spiral	**1000**	bar	Evonik standard

Characteristics

Key Feature, Industrial Sector
Automotive, Aircraft and Aerospace, Electrical and Electronical, Instustry and Building Construction, Medical, Optics, Sports and Lifestyle

Key Feature, Processing
Injection Molding, Extrusion

Key Feature, Optics
Transparent, High Gloss

Key Feature, Resistance to
Heat (Thermal Stability), Hydrolysis / Hot water, U.V. / Light / Weathering

Key Feature, Additives
Unfilled

Applications
(Sun-) glasses, Hygiene and cosmetics

Processing
Film Extrusion, Profile Extrusion

Special Characteristics
halogen-free, phosphorus-free, PTFE-free, Amorphous, Low viscosity

Features
Non-corrosive

Color
Natural Color

Delivery form
Spherical Pellets

Chemical Media Resistance

Alcohols

- ✖ Isopropyl alcohol (23°C)
- ✖ Methanol (23°C)
- ✖ Ethanol (23°C)

Ketones

- ✖ Acetone (23°C)

Salt solutions

- ✔ Sodium Chloride solution (10% by mass) (23°C)
- ✔ Sodium Carbonate solution (20% by mass) (23°C)
- ✔ Sodium Carbonate solution (2% by mass) (23°C)

Other

- ✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Density of melt	**900**	kg/m³	-
Thermal conductivity of melt	**0.25**	W/(m K)	-

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