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creating essentials

TROGAMID® CX9704 natural color

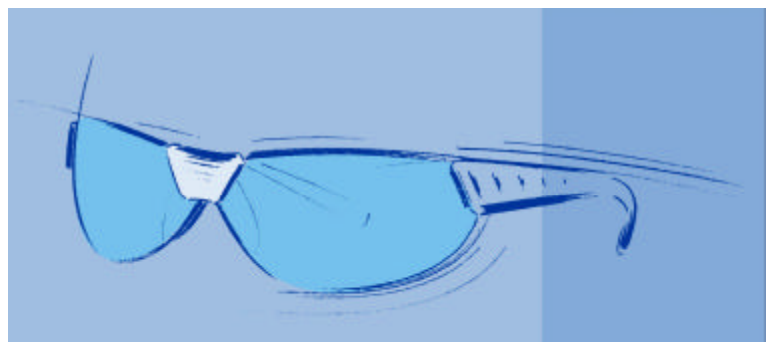
Transparent polyamide for injection molding

TROGAMID® CX9704 is a transparent polyamide with a glass transition temperature of 132 °C suitable for injection molding.

The product has been approved for direct contact with foodstuffs by the European Community (Directive 2002/72/EC).

TROGAMID® CX9704, pre-dried to a moisture content of not more than 0.1 wt.-% water, is supplied in moisture-proof bags. In unopened bags the compound can be stored for at least two years at room temperature.

If drying is necessary a dehumidified air drying oven should be used with a temperature setting between 80–90 °C for 8–12 hours.



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Processing information

In general, TROGAMID can be processed by most commercially available injection molding machines. Nevertheless, we recommend that you follow the instructions listed below when using TROGAMID CX9704 in injection molding.

Processing conditions

Temperatures	• General settings for melt and mold temperatures see Diagram 1. • Decreasing temperature profile in heating zones towards hopper in steps of 10 °C recommended • If the melt temperature exceeds 310 °C, the ready molded part should be checked, e.g., by determining its viscosity number. Controlling of the melt color is not sufficient to determine possible degradation. • Cooling of feeding zone between 40-80 °C
Peripheral screw speed	• In the range of 3–12 m/min optimum, 10 m/min preferred • Higher speeds (i.d. > 18 m/min) can be applied, but might lead to problems in processing.
Decompression	• After the metering is completed, a decompression could negatively affect the surface of the parts and hence should be not applied.
Pressures	• Dynamic pressure: 40–100 bar • Injection pressure: 800–1600 bar • Pressure in holding phase: up to 1400 bar
Production shutdown	• For short production breaks (e.g., up to 1 hour): empty the barrel, move screw to ultimate front position and decrease the temperature setting of the heating zones down to 150 °C. • For long production breaks: purge the barrel with high viscosity PP or polymethyl methacrylate (PMMA), then empty the barrel, move screw in ultimate front position, switch off cylinder heatings. Remove resin left in hopper and store in moisture-proof packaging.
Trouble shooting	• For trouble shooting problems with injection molding, guidelines published in common literature can be applied (e.g., "Guide to Surface Defects on Thermoplastic Injection Molded Parts", published by Kunststoff-Institut für die mittelständische Wirtschaft, Karolinenstr. 8, 58507 Lüdenscheid, Germany). • For futher information please contact our Tech Service or your regional contact.

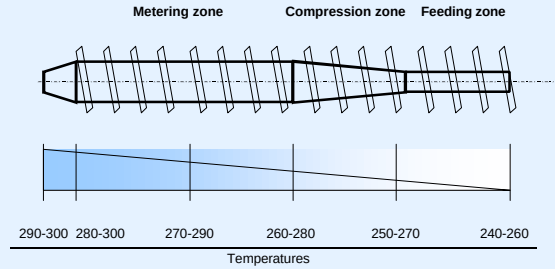

Diagram 1

Property	Test method		Unit	TROGAMID
	international	national		CX9704
Density 23°C	ISO 1183	DIN EN ISO 1183	g/cm³	1.02
Glass transition temperature 2nd heating	DSC-7	DSC-7	°C	132
Tensile test	ISO 527-1/-2	DIN EN ISO 527-1/-2		
Stress at yield			MPa	60
Strain at yield			%	8
Strain at break			%	>50
Tensile modulus	ISO 527-1/-2	DIN EN ISO 527-1/-2	MPa	1400
CHARPY impact strength 23 °C	ISO 179/1eU	DIN EN ISO 179/1eU	kJ/m²	N[1]
0 °C			kJ/m²	N[1]
-30 °C			kJ/m²	N[1]
CHARPY notched impact strength 23 °C	ISO 179/1eA	DIN EN ISO 179/1eA	kJ/m²	11 C[1]
0 °C			kJ/m²	11 C[1]
-30 °C			kJ/m²	10 C[1]
Shore hardness D	ISO 868	DIN EN ISO 868		81
Temp. of deflection under load	ISO 75-1	DIN EN ISO 75-1		
Method A 1.8 MPa	ISO 75-2	DIN EN ISO 75-2	°C	102
Method B 0.45 MPa			°C	120
Vicat softening temperature	ISO 306	DIN EN ISO 306		
Method A 10 N			°C	132
Method B 50 N			°C	125
Linear thermal expansion 23-55 °C longitudinal	ISO 11359	DIN 53752	$10^{-4}K^{-1}$	0.9
Relative permittivity 100 Hz	IEC 60250	DIN VDE 0303-T4		3.4
Dissipation factor 100 Hz	IEC 60250	DIN VDE 0303-T4		0.013
Comparative tracking index	IEC 60112	DIN IEC 60112		
Test solution A CTI				600
100 drops value				575
Volume resistivity	IEC 60093	DIN EN 60093	Ohm·m	10^{13}
Surface resistance R_{OA}	IEC 60093	DIN EN 60093	Ohm	10^{14}
Flammability acc. UL94 0.8 mm	IEC 60695	UL94		HB
1.6 mm				HB
Water absorption saturation	ISO 62	DIN EN ISO 62	%	3.5
Mold shrinkage	ISO 294-4			
in flow direction			%	0.4
in transverse direction			%	0.5

[1] N = no break, C = complete break, incl. hinge break H