

## Evonik Corporation Trogamid® CX9710 Transparent Nylon

Category : Polymer , Thermoplastic , Nylon , Nylon, Amorphous Transparent Alloy

### Material Notes:

Description: TROGAMID® CX compounds round off the product range of High Performance Polymers to include semicrystalline polyamides, the crystallites of which are so small that they do not scatter visible light—a property known as microcrystallinity. The compounds are therefore as clear as glass. They possess higher resistance to chemicals and stress cracking than amorphous transparent plastics, in addition to the mechanical advantages of amorphous compounds. The outstanding properties of TROGAMID® CX are: crystal-clear, permanent transparency; high transmission superior chemical and stress cracking resistance high level of UV resistance low water absorption, which leaves the mechanical properties virtually unaffected high dimensional stability balanced mechanical property profile high impact resistance, even at low temperature high level of dynamic strength (e.g., for internally pressurized parts) abrasion and scratch resistance high glass transition temperature very low isotropic shrinkage easy processing The unique combination of properties in TROGAMID® CX compounds permits their use over a broad application spectrum. Areas of application can be as diverse as water management, filter technology, laboratory and medical technology, the manufacture of eyeglasses, or bottles for the cosmetics industry. Specific Notes for this Material: Medium-viscous, permanently transparent polyamide for injection molding and extrusion, with an internal mold release agent Information provided by degussa.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Evonik-Corporation-Trogamid-CX9710-Transparent-Nylon.php](http://www.lookpolymers.com/polymer_Evonik-Corporation-Trogamid-CX9710-Transparent-Nylon.php)

Physical Properties	Metric	English	Comments
Density	1.02 g/cc	0.0368 lb/in <sup>3</sup>	ISO 1183
Melt Density	0.900 g/cc	0.0325 lb/in <sup>3</sup>	
Viscosity Test	>= 150 cm <sup>3</sup> /g	>= 150 cm <sup>3</sup> /g	Viscosity Number; ISO 307

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	80	80	ISO 868
Ball Indentation Hardness	110 MPa	16000 psi	H30; ISO 2039-1
Tensile Strength at Break	>= 50.0 MPa	>= 7250 psi	50 mm/min; ISO 527-1/2
Tensile Strength, Yield	60.0 MPa	8700 psi	50 mm/min; ISO 527-1/2
Elongation at Break	>= 150 %	>= 150 %	50 mm/min; ISO 527-1/2
Elongation at Yield	8.0 %	8.0 %	50 mm/min; ISO 527-1/2
	9.0 %	9.0 %	5 mm/min, Outer fiber strain at maximum stress; ISO 178
Tensile Modulus	1.40 GPa	203 ksi	ISO 527-1/2
Flexural Strength	50.0 MPa	7250 psi	5 mm/min, at 3.5% Strain; ISO 178

Mechanical Properties	90.0 MPa Metric	13100 psi English	5 mm/min: ISO 178 Comments
Flexural Modulus	1.65 GPa	239 ksi	ISO 178
Charpy Impact Unnotched	NB	NB	ISO 179/1eU
	@Temperature 0.000 °C	@Temperature 32.0 °F	
	NB	NB	ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	NB	NB	ISO 179/1eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	1.30 J/cm <sup>2</sup>	6.19 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	1.40 J/cm <sup>2</sup>	6.66 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	1.40 J/cm <sup>2</sup>	6.66 ft-lb/in <sup>2</sup>	ISO 179/1eA
	@Temperature 0.000 °C	@Temperature 32.0 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	90.0 µm/m-°C	50.0 µin/in-°F	Longitudinal; ISO 11359
	@Temperature 23.0 - 80.0 °C	@Temperature 73.4 - 176 °F	
CTE, linear, Transverse to Flow	90.0 µm/m-°C	50.0 µin/in-°F	ISO 11359
	@Temperature 23.0 - 80.0 °C	@Temperature 73.4 - 176 °F	
Specific Heat Capacity	2.50 J/g-°C	0.598 BTU/lb-°F	
Thermal Conductivity	0.280 W/m-K	1.94 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	250 °C	482 °F	10 K/min
Maximum Service Temperature, Air	100 °C	212 °F	Temperature Index (Criterion: stress and yield); IEC 216
Deflection Temperature at 0.46 MPa (66 psi)	123 °C	253 °F	ISO 75-1/2
Deflection Temperature at 1.8 MPa (264 psi)	108 °C	226 °F	ISO 75-1/2
Vicat Softening Point	130 °C	266 °F	50N; ISO 306
	135 °C	275 °F	10N; ISO 306

Glass Transition Temp, Tg Thermal Properties	140 °C Metric	284 °F English	Tg, 10 K/min Comments
Flammability, UL94	HB	HB	
	@Thickness 0.800 mm	@Thickness 0.0315 in	
	HB	HB	
	@Thickness 1.60 mm	@Thickness 0.0630 in	
Glow Wire Test	850 °C	1560 °F	IEC 60695-2-1/0-3
	@Thickness 1.00 mm	@Thickness 0.0394 in	

Optical Properties	Metric	English	Comments
Transmission, Visible	90 %	90 %	transparent; thickness not quantified

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+17 ohm-cm	>= 1.00e+17 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+13 ohm	>= 1.00e+13 ohm	IEC 60093
	>= 1.00e+15 ohm	>= 1.00e+15 ohm	Spec.; IEC 60093
Dielectric Constant	3.2	3.2	IEC 60250 DIN VDE 0303-Part 4
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
	3.6	3.6	IEC 60250 DIN VDE 0303-Part 4
	@Frequency 100 Hz	@Frequency 100 Hz	
Dissipation Factor	0.012	0.012	IEC 60250 DIN VDE 0303-Part 4
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.0325	0.0325	IEC 60250 DIN VDE 0303-Part 4
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Comparative Tracking Index	575 V	575 V	Test Solution A, 100 drops; IEC 60112
	600 V	600 V	Test Solution A; IEC 60112

Descriptive Properties	Value	Comments
Carreau-WLF K1	250.6	
Carreau-WLF K2	0.005889	
Carreau-WLF K3	0.9137	
Carreau-WLF K4	295	

Carreau-WLF K5  
Descriptive Properties

150.5  
Value

Comments

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