

Evonik Trogamid® CX7323 Transparent Nylon

Categories: [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 temperatures
- 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



Information provided by degussa.



Evonik Industries is the successor company to Degussa.


Key Words: PA PACM 12, cycloaliphatic diamine dodecanedioic acid

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	1.02 g/cc	0.0368 lb/in ³	ISO 1183
Melt Density	0.900 g/cc	0.0325 lb/in ³	
Water Vapor Transmission	8.30 g/m ² /day @Diameter 0.108 mm, Temperature 23.0 °C	0.535 g/100 in ² /day @Diameter 0.00425 in, Temperature 73.4 °F	85% R.H.
Oxygen Transmission Rate	37.49 cc/m ² /day @Diameter 0.0500 mm	2.414 cc/100 in ² /day @Diameter 0.00197 in	or 740 cc/m ² -24hr-bar
Nitrogen Transmission	4.31 cc-mm/m ² -24hr-atm @Diameter 0.0500 mm	10.9 cc-mil/100 in ² -24hr-atm @Diameter 0.00197 in	or 85 cc/m ² -24hr-bar
Carbon Dioxide Transmission	128.68 cc-mm/m ² -24hr-atm @Diameter 0.0500 mm	326.85 cc-mil/100 in ² -24hr-atm @Diameter 0.00197 in	or 2540 cc/m ² -24hr-bar
Viscosity Number	160 - 180 cm ³ /g	1.60 - 1.80 dl/g	ISO 307
Permeability	5.0e-10	5.0e-10	cm ³ /(cm s bar), Nitrogen Permeation Coefficient (d=0.05 mm)
	4.3e-9	4.3e-9	cm ³ /(cm s bar), Oxygen Permeation Coefficient (d=0.05 mm)
	1.42e-8	1.42e-8	cm ³ /(cm s bar), Carbon Dioxide Permeation Coefficient (d=0.05 mm)
Chemical Properties	Metric	English	Comments
Critical Pressure	110 bar	82500 torr	Burst Pressure; Degussa
Mechanical Properties	Metric	English	Comments
Hardness, Shore D	81	81	ISO 868
Ball Indentation Hardness	108 MPa	15700 psi	H30; ISO 2039-1
Tensile Strength at Break	>= 50.0 MPa @Temperature 23.0 - 80.0 °C	>= 7250 psi @Temperature 73.4 - 176 °F	50 mm/min; ISO 527-1/2
Tensile Strength, Yield	60.0 MPa @Temperature 23.0 - 80.0 °C	8700 psi @Temperature 73.4 - 176 °F	50 mm/min; ISO 527-1/2
Elongation at Break	>= 150 %	>= 150 %	50 mm/min; ISO 527-1/2
	>= 50 % @Temperature 80.0 °C	>= 50 % @Temperature 176 °F	ISO 527-1/2
Elongation at Yield	9.0 %	9.0 %	5 mm/min, Outer fiber strain at maximum stress; ISO 178
	8.0 % @Temperature 23.0 - 80.0 °C	8.0 % @Temperature 73.4 - 176 °F	50 mm/min; ISO 527-1/2
Tensile Modulus	1.40 GPa	203 ksi	ISO 527-1/2
	1.27 GPa @Temperature 80.0 °C	184 ksi @Temperature 176 °F	ISO 527-1/2
Flexural Strength	50.0 MPa	7250 psi	5 mm/min, at 3.5% Strain; ISO 178
	90.0 MPa	13100 psi	5 mm/min; ISO 178
Flexural Modulus	1.70 GPa	247 ksi	ISO 178

Charpy Impact Unnotched 	NB @Temperature 0.000 °C	NB @Temperature 32.0 °F	ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ISO 179/1eU
Charpy Impact, Notched 	1.40 J/cm ² @Temperature -30.0 °C	6.66 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eA
	1.50 J/cm ² @Temperature 0.000 °C	7.14 ft-lb/in ² @Temperature 32.0 °F	ISO 179/1eA
	1.60 J/cm ² @Temperature 23.0 °C	7.61 ft-lb/in ² @Temperature 73.4 °F	ISO 179/1eA
Tensile Creep Modulus, 1 hour	1300 MPa	189000 psi	ISO 899-1
Tensile Creep Modulus, 1000 hours	700 MPa	102000 psi	ISO 899-1
Abrasion	18	18	Abrasion Resistance, mg/100 rev.; DIN 53754

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 @Frequency 1e+6 Hz	3.2 @Frequency 1e+6 Hz	IEC 60250 DIN VDE 0303-Part 4
	3.6 @Frequency 100 Hz	3.6 @Frequency 100 Hz	IEC 60250 DIN VDE 0303-Part 4
Dielectric Strength	27.0 kV/mm	686 kV/in	K20/P50; IEC 60243-1
Dissipation Factor 	0.0115 @Frequency 100 Hz	0.0115 @Frequency 100 Hz	IEC 60250 DIN VDE 0303-Part 4
	0.0325 @Frequency 1e+6 Hz	0.0325 @Frequency 1e+6 Hz	IEC 60250 DIN VDE 0303-Part 4
Comparative Tracking Index	575 V	575 V	Test Solution A, 100 drops; IEC 60112
	600 V	600 V	Test Solution A; IEC 60112

Thermal Properties	Metric	English	Comments
CTE, linear	90.0 µm/m-°C @Temperature 23.0 - 80.0 °C	50.0 µin/in-°F @Temperature 73.4 - 176 °F	Longitudinal; ISO 11359
CTE, linear, Transverse to Flow	90.0 µm/m-°C @Temperature 23.0 - 80.0 °C	50.0 µin/in-°F @Temperature 73.4 - 176 °F	ISO 11359
Specific Heat Capacity	2.49 J/g-°C	0.595 BTU/lb-°F	
Thermal Conductivity	0.250 W/m-K	1.74 BTU-in/hr-ft ² -°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)	122 °C	252 °F	ISO 75-1/2
Deflection Temperature at 1.8 MPa (264 psi)	105 °C	221 °F	ISO 75-1/2
Vicat Softening Point	130 °C	266 °F	50N; ISO 306
	138 °C	280 °F	10N; ISO 306
Glass Transition Temp, Tg	140 °C	284 °F	Tg, 10 K/min
Flammability, UL94 	HB @Thickness 0.800 mm	HB @Thickness 0.0315 in	
	HB @Thickness 1.60 mm	HB @Thickness 0.0630 in	
Glow Wire Test	850 °C @Thickness 1.00 mm	1560 °F @Thickness 0.0394 in	IEC 60695-2-1/0-3

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

Descriptive Properties

Carreau-WLF K1	559.3	
Carreau-WLF K2	0.00187	
Carreau-WLF K3	0.7486	
Carreau-WLF K4	300	
Carreau-WLF K5	176.3	
Color	Transparent	
Dynamical Behavior Under Load	Min 10 ⁶ cycles	(Filter Cup/O-38 bar/160 min ⁻¹)
Scratch Resistance	32% Turbidity Increase	DIN 52347

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.