Product Information

TROGAMID® myCX

MICROCRYSTALLINE, PERMANENTLY TRANSPARENT POLYAMIDE

TROGAMID® myCX is a microcrystalline transparent polyamide for the manufacture of parts in the optical industry, like lenses 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® myCX 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
Medical Devices, Optics, Sports and Lifestyle

Processing
Injection molding, Extrusion

Optics
Transparent, High gloss

Resistance to
Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering

Conformity
Food contact, Medical application

Additives
Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	TROGAMID® microcrystalline	-	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	**1400 / -**	MPa	ISO 527
Tensile strength	**60 / -**	MPa	ISO 527
Yield stress	**60 / -**	MPa	ISO 527
Yield strain	**8 / -**	%	ISO 527
Stress at 50% strain	**42 / -**	MPa	ISO 527
Nominal strain at break, tB	**180 / -**	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	*** / 1300**	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	*** / 700**	MPa	ISO 899-1
Charpy impact strength, +23°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**16 / 11**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**14 / 10**	kJ/m²	ISO 179/1eA
Type of failure	**C / C**	-	-

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**255 / ***	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**140 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**105 / ***	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**122 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**137 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**130 / ***	°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
Melting Temperature	**255**	°C	ASTM D 3418

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Density	**1020 / -**	kg/m³	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
Density	**1020**	kg/m³	ASTM D 792

b: 3 seconds

Burning Behav.	**dry / cond**	**Unit**	**Test Standard**
Burning behav. at 1.5 mm nom. thickn.	**HB / ***	class	IEC 60695-11-10
Thickness tested	**1.6 / ***	mm	-
Burning behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.8 / ***	mm	-
Burning rate, FMVSS, Thickness 1 mm	**0.1**	mm/min	ISO 3795 (FMVSS 302)

Electrical properties	**dry / cond**	**Unit**	**Test Standard**
Volume resistivity, V	**>1E13 / -**	Ohm*m	IEC 62631-3-1
Surface resistance, RSA	**1E13 / -**	Ohm	IEC 62631-3-2
Surface resistivity, A	**1E14 / -**	Ohm per square	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	**27 / -**	kV/mm	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	-
Molding shrinkage, parallel	**0.7 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.7 / ***	%	ISO 294-4, 2577
Mold temperature	**80 / ***	°C	-
Melt temperature	**280 / ***	°C	-

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	**155 / ***	cm^3/g	ISO 307, 1157, 1628

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**280**	°C	ISO 294
Injection Molding, mold temperature	**80**	°C	ISO 294
Injection Molding, injection velocity	**200**	mm/s	ISO 294
Injection Molding, pressure at hold	**70**	MPa	ISO 294

Characteristics

Applications
Lenses

Processing
Film extrusion, Profile extrusion

Special Characteristics
Environmental stress crack resistance, Light-stabilized, U.V. stabilized

Regulatory
Food contact 10/2011/EC

Color
Natural color

Delivery form
Spherical pellets

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% by mass) (23°C)
- ✔ Sulfuric Acid (5% by mass) (23°C)

Bases

- ✔ Sodium Hydroxide solution (35% by mass) (23°C)
- ✔ Sodium Hydroxide solution (1% by mass) (23°C)

Alcohols

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

Hydrocarbons

- ✔ n-Hexane (23°C)
- ✔ iso-Octane (23°C)

Ketones

- ✔ Acetone (23°C)

Mineral oils

- ✔ SAE 10W40 multigrade motor oil (23°C)
- ✔ Insulating 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)

Salt solutions

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

Other

- ✔ Ethyl Acetate (23°C)
- ✔ 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)	-
Spec. heat capacity of melt	**2490**	J/(kg K)	-
Ejection temperature	**120**	°C	-
Min. mold temperature	**60**	°C	-
Max. mold temperature	**100**	°C	-
Min. melt temperature	**260**	°C	-
Max. melt temperature	**300**	°C	-