

Product Information

TROGAMID® Care MX73

MICROCRYSTALLINE AND TRANSPARENT POLYAMIDES FOR FOR MEDICAL APPLICATION



TROGAMID® Care MX is the material of choice for all applications dealing with pharmaceutical formulations, lipids or aggressive disinfectants, since it exhibits an exceptional resistance towards chemicals and stress-cracking. Examples include fluid and drug delivery equipment such as stop-cocks, dialyzer parts, housings, covers or hearing aids.

Target areas of application for TROGAMID® Care MX compounds include fluid and drug delivery systems, surgical instruments, housings, monitoring and imaging devices and durable medical equipment.

All advantages at a glance

- High transparency
- High chemical resistance
- Very good stress crack resistance
- UV resistance
- High dynamic load-bearing capacity
- High impact resistance
- Easy processability & colorability
- Free of BPA
- Gamma and EtO sterilizable

Biocompatibility of TROGAMID® Care

Biocompatibility was tested following ISO10993-1 recommendations for a surface medical device with up to 30 days body contact.

The material fulfills the requirements of USP<88> class VI.

Tests were performed by independent, certified laboratories.

Biocompatibility tests for TROGAMID® Care:

Key Features

Industrial Sector

Medical Devices

Optics

Transparent

Processing

Injection molding, Extrusion

Conformity

Drinking water contact, Biocompatibility, Medical application

Delivery form

Pellets, Granules

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	203000 / -	psi	ISO 527
Tensile strength	8700 / -	psi	ISO 527
Yield stress	8700 / -	psi	ISO 527
Yield strain	8 / -	%	ISO 527
Stress at 50% strain	5800 / -	psi	ISO 527
Stress at break	8700 / -	psi	ISO 527
Nominal strain at break, tB	>50 / -	%	ISO 527
Charpy impact strength, +23°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy impact strength, 0°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy impact strength, -30°C	N / -	ftlb/in ²	ISO 179/1eU
Charpy notched impact strength, +23°C	6.66 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-

Charpy notched impact strength, 0°C	5.71 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Charpy notched impact strength, -30°C	5.23 / -	ftlb/in ²	ISO 179/1eA
Type of failure	C / -	-	-
Flexural modulus, 23°C	247000 / -	psi	ISO 178
Flexural stress at conv. deflection, 23°C	7250 / -	psi	ISO 178
Flexural strength, 23°C	13100 / -	psi	ISO 178
Flexural strain at flexural strength, 23°C	9 / -	%	ISO 178
Flexural strain at break, 23°C	N / -	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	482 / *	°F	ISO 11357-1/-3
Glass transition temperature, DSC	284 / *	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	226 / *	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	252 / *	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	279 / *	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	266 / *	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	5.0E-5 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	5.0E-5 / *	in/in/°F	ISO 11359-1/-2
Melting Temperature	482	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1.02 / -	g/cm ³	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	1.02	g/cm ³	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	0.0630 / *	in	-
Burning behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0315 / *	in	-
Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0236 / *	in	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	>1E13 / -	Ohm*m	IEC 62631-3-1
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	686 / -	kV/in	IEC 60243-1
Dielectric strength, AC, S20/P50	686 / -	V/mil	Sim. to 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	0.8 / *	%	ISO 294-4, 2577
Mold temperature	176 / *	°F	-
Melt temperature	536 / *	°F	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	536	°F	ISO 294
Injection Molding, mold temperature	176	°F	ISO 294
Injection Molding, injection velocity	7.87	in/s	ISO 294

Characteristics

Applications

Displays, Lenses

Processing

Film extrusion, Profile extrusion, Sheet extrusion

Special Characteristics

Halogen-free, Semi-crystalline, Environmental stress crack resistance, U.V. stabilized

Regulatory

US Pharmacopeia Class VI conformity

Color

Natural color