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

Biocompatiblity 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:

Processing of TROGAMID® Care

For information about processing of TROGAMID®, please follow the general recommendations about "Processing of TROGAMID® compounds".

The values presented are typical or average values, they do not constitute a specification.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM
OR VISIT OUR PRODUCT AT WWW.EVONIK.COM/MEDICAL-TECHNOLOGY

Key Features

Industrial Sector
Medical Devices

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Optics
Transparent

Conformity
Drinking water contact, Biocompatibility, 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	**40 / -**	MPa	ISO 527
Stress at break	**60 / -**	MPa	ISO 527
Nominal strain at break, tB	**>50 / -**	%	ISO 527
Charpy impact strength, +23°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, 0°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**14 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-

Charpy notched impact strength, 0°C	**12 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**11 / -**	kJ/m²	ISO 179/1eA
Type of failure	**C / -**	-	-
Flexural modulus, 23°C	**1700 / -**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**50 / -**	MPa	ISO 178
Flexural strength, 23°C	**90 / -**	MPa	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	**250 / ***	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**140 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**108 / ***	°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	**250**	°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	-
Burnin behav. at thickness h	**HB / ***	class	IEC 60695-11-10
Thickness tested	**0.6 / ***	mm	-

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	**27 / -**	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P50	**27 / -**	kV/mm	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	**80 / ***	°C	-
Melt temperature	**280 / ***	°C	-

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

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

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