

Product Information

TROGAMID® eCO myCX BC40 I

MICROCRYSTALLINE, PERMANENTLY TRANSPARENT POLYAMIDE



TROGAMID® eCO myCX BC40 I is a microcrystalline transparent polyamide for the manufacture of parts in the optical industry, like lenses, by injection molding. eCO stands for Evoniks aim to eliminate CO₂ through use of renewable or circular feedstocks via massbalance approach.

TROGAMID® eCO myCX BC40 I is supplied as spherical pellets in moisture-proof packaging.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications. Pigmentation may affect values.

Key Features

Industrial Sector

Sustainable, Optics, Sports and Lifestyle

Sustainability

eCO

Processing

Injection molding, Extrusion

Optics

Transparent, High gloss, X-ray transparent

Resistance to

Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering, Fatigue resistance

Conformity

Food contact

Additives

Unfilled

LCA-values

LCA name of certificate

dry

[TROGAMID® eCO myCX BC40 I](#)

Unit

-

Test Standard

ISO 14040, 14044

LCA certifier

[TÜV Rheinland](#)

-

ISO 14040, 14044

Blue water consumption

17.1

kg

ISO 14040, 14044

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Global Warming Potential incl. bio. C incl. LUC	4.4	kg CO ₂ eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	5.4	kg CO ₂ eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	0.4	Annual crop eq. y	ISO 14040, 14044

Mechanical properties ISO

	dry / cond	Unit	Test Standard
Tensile modulus	215000 / 216000	psi	ISO 527
Tensile strength	8560 / 9140	psi	ISO 527
Yield stress	8560 / 9140	psi	ISO 527
Yield strain	8 / 7	%	ISO 527
Stress at 50% strain	6090 / 5660	psi	ISO 527
Stress at break	9430 / 8700	psi	ISO 527
Nominal strain at break, tB	180 / 185	%	ISO 527
Charpy impact strength, +23°C	N / N	ftlb/in ²	ISO 179/1eU
Charpy impact strength, -30°C	N / N	ftlb/in ²	ISO 179/1eU
Charpy notched impact strength, +23°C	5.23 / 5.71	ftlb/in ²	ISO 179/1eA
Type of failure	C / C	-	-
Charpy notched impact strength, -30°C	5.23 / 5.71	ftlb/in ²	ISO 179/1eA
Type of failure	C / C	-	-
Flexural modulus, 23°C	212000 / 218000	psi	ISO 178
Flexural stress at conv. deflection, 23°C	7540 / 7830	psi	ISO 178
Flexural strength, 23°C	11700 / 12800	psi	ISO 178
Flexural strain at flexural strength, 23°C	8 / 8	%	ISO 178
Flexural stress at break, 23°C	N / N	psi	ISO 178
Flexural strain at break, 23°C	N / N	%	ISO 178

Thermal properties

	dry / cond	Unit	Test Standard
Melting temperature	477 / *	°F	ISO 11357-1/-3
Glass transition temperature, DSC	275 / *	°F	ISO 11357-1/-2

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Temp. of deflection under load A, 1.80 MPa	216 / *	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	248 / *	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	271 / *	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	261 / *	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	5.11E-5 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	5.33E-5 / *	in/in/°F	ISO 11359-1/-2
Melting Temperature	477	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1.02 / -	g/cm ³	ISO 1183
Water absorption	3 / *	%	Sim. to ISO 62
Humidity absorption	2 / *	%	Sim. to ISO 62
Shore D hardness	81^[b] / -	-	ISO 7619-1
Density	1.02	g/cm ³	ASTM D 792

b: 3 seconds

Optical properties	dry	Unit	Test Standard
Haze	2.1	%	ASTM D 1003
Haze Thickness tested	0.0787	in	-
Light Transmittance	92	%	ASTM D 1003
Light Transmittance Thickness tested	0.0787	in	ASTM D 1003

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	11 / *	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	176 / *	°F	-

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Melt temperature	536 / *	°F	-
Flow length, flow spiral	11.6	in	Evonik standard
Flow cross section	6 x 2	mm ²	Evonik standard
Mold temperature, flow spiral	176	°F	Evonik standard
Melt temperature, flow spiral	536	°F	Evonik standard
Injection pressure, flow spiral	14500	psi	Evonik standard
Flow length, flow spiral	18.3	in	Evonik standard
Flow cross section	6 x 2	mm ²	Evonik standard
Mold temperature, flow spiral	176	°F	Evonik standard
Melt temperature, flow spiral	572	°F	Evonik standard
Injection pressure, flow spiral	14500	psi	Evonik standard

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

Fiber optic cable, (Sun-) glasses, Hygiene and cosmetics, Lenses, Monofilament

Processing

Film extrusion

Special Characteristics

Halogen-free, Phosphorus-free, High impact strength, Low viscosity

Features

optical UV-protection, Weldable, Low birefringence, Non-corrosive, Dishwasher detergents resistant

Regulatory

Food contact 10/2011/EC

Color

Natural color

Delivery form

Spherical pellets