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Product Information

Elan-tech®

PC 224 GLASS MR/G 124

100:65

Transparent 2-components polyurethane system

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Resin
PC 224 GLASS MR

Hardener
G 124

Mixing ratio by weight
100:65

Application: Realization of functional prototyping, demonstrative and pre-series of transparent objects.

Processing: Vacuum casting after degassing, in silicon rubber, metal and resin moulds.
Attention: read carefully the instructions on the back.

Description: Two components polyurethane system, colourless. Can be easily coloured. Hard and tough.
Medium pot life. Very good resistance towards UV.

TYPICAL SYSTEM CHARACTERISTICS

Resin

Resin Colour			Colourless
Viscosity 25°C	IO-10-50 (EN13702-2)	mPas	500 1.200
Density 25°C	IO-10-51 (ASTM D 1475)	g/ml	1,00 1,04

Hardener

Hardener Colour			Colourless
Viscosity at: 25°C	IO-10-50 (EN13702-2)	mPas	500 800
Density 25°C	IO-10-51 (ASTM D 1475)	g/ml	1,13 1,17

Processing Data

Mixing ratio by weight	for 100 g resin	g	100:65
Mixing ratio by volume	for 100 ml resin	ml	100:75

Initial mixture viscosity at: 25°C	IO-10-50 (EN13702-2)	mPas	600 1000
Gelation time 25°C 100ml	IO-10-52a (UNI 8701)	min	20 30
Demoulding time 25°C (15ml;6mm)	(*)	h	3,0 4,0
Maximum recommended thickness		mm	40

PC 224 GLASS MR/G 124

TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 24 h RT + 15 h 60°C

Colour			Colourless
Machinability			Excellent
Density 25°C	IO-10-54 (ASTM D 792)	g/ml	1,08 1,12
Hardness 25°C	IO-10-58 (ASTM D 2240)	Shore D/15	84 88
Glass transition (Tg)	24 h RT + 15 h 60°C	IO-10-69 (ASTM D 3418)	°C 80 86
Linear thermal expansion (Tg -10°C)	IO-10-71 (ASTM E 831)	10 ⁻⁶ /°C	70 80
Linear thermal expansion (Tg +10°C)	IO-10-71 (ASTM E 831)	10 ⁻⁶ /°C	150 180
Flexural strength	IO-10-66 (ASTM D 790)	MN/m ²	62 70
Maximum strain	IO-10-66 (ASTM D 790)	%	5 7
Strain at break	IO-10-66 (ASTM D 790)	%	>15
Flexural elastic modulus	IO-10-66 (ASTM D 790)	MN/m ²	1.700 2.000
Tensile strength	IO-10-63 (ASTM D 638)	MN/m ²	42 50
Elongation at break	IO-10-63 (ASTM D 638)	%	8 12
Compressive strength	IO-10-72 (ASTM D 695)	MN/m ²	55 60

IO-00-00 = Elantas Italia's test method. The correspondent international method is indicated whenever possible.

nd = not determined na = not applicable RT = TA = laboratory room temperature (23±2°C)

Conversion units: 1 mPas = 1 cPs 1MN/m² = 10 kg/cm² = 1 MPa

(*) for larger quantities pot life is shorter and exothermic peak increases

(**) the brackets mean optionality

(***) The maximum operating temperature is given on the basis of laboratory information available being it function of the curing conditions used and of the type of coupled materials. For further possible information see post-curing paragraph.

PC 224 GLASS MR/G 124

- Instructions:**
- Preparation of resin and hardener:** open the tins and verify that the B component (isocyanate) is not crystallized. If it is crystallized it is necessary to close the tin not hermetically and to heat it in an oven for 2 hours at 70°C. This operation allows the dissolution of the solid particles. If the product after this treatment is not perfectly clear it is necessary to repeat it doubling the residence time in the oven.
- Mould preparation:** carefully clean the mould, then spray a release agent. Take care not to use too much release agent and make sure it is completely dry before coupling the mould parts.
- Mould temperature:** the mould must be free of moisture and stored at 25°C.
- Preparation for the vacuum casting:** treat the components under vacuum in the appropriate vacuum chamber until the materials don't show any bubbles on the surface.
- Casting:** mix under vacuum the correct proportion of resin and hardener. The mixture will increase its volume due to a great amount of bubbling; treat under vacuum for 1-2 minutes, to eliminate most of the trapped air and to cast in the mold.
- Curing:** when the injection is over, place the mould at 25°C for.
- Precautions:** if the cured material shows microbubbles or pinholes it is possible that the resin contains an anomalous amount of humidity due to moisture absorption during handling. To ripristinate the original situation operate in the following way: heat the resin (PC224 GLASS MR) in an oven at 80-90°C for about 2 hours. Treat the material under the maximum vacuum possible (1-5 mbar) until all the bubbles disappear (30-60 minutes). Before use the product must be cooled down at room temperature store under vacuum or in a closed vessel and hermetically resealed the product after each use.
- The increase in temperature reduces the curing time.
- Curing / Post-curing:** When high heat resistance is required, the prototype needs post-curing. To obtain the highest thermal resistance place the prototypes at 50°C for 3 hours. Depending on the size and shape, the prototype should be post-cured on its jig to avoid deformations.
- Storage:** Polyol resins and the isocyanate based hardeners can be stored for one year in the original sealed containers stored in a cool, dry place. The hardeners may present an increase in viscosity that does not change the cured system properties. Both components are moisture sensitive therefore it is good practice to close the vessels immediately after each use. Moisture absorption may cause the expansion of the product during application and/or the hardener may crystallize during storage. The isocyanates may crystallize at low temperatures. To restore the original conditions, heat the material at 70-80°C avoiding local overheating. Before use, the product must be rehomogenized and cooled down at room temperature.
- Note: pay attention to the instructions given in paragraph 8 of the safety data sheet.
- Handling precautions:** Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

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The information given in this publication is based on the present state of our technical knowledge but buyers and users should make their own assessments of our products under their own application conditions.