

EN Product Information

Elan-tech®

PU 412/G 31 100:30

2-component filled, flexible, polyurethane system

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Resin
PU 412

Hardener
G 31

Mixing ratio by weight
100:30

Application: Ceramic case moulds.

Processing: Face casting on plaster or back-filled resin core. Room temperature curing. The full stabilization of the material properties is reached only after few days if the curing is carried out at room temperature (6-8 days).

Description: Two component, elastomeric system. Good dimensional stability. Good resistance to greases, petrol, oil, detergents.

SYSTEM SPECIFICATIONS

Resin

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	4.000	11.000
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	1,20	1,24
Gelation time	25°C 100 ml	IO-10-52a (UNI 8701)	min	35	50

Hardener

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	150	450
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TYPICAL SYSTEM CHARACTERISTICS

Processing Data

Resin Colour				Beige
Hardener Colour				Pale/yellow
Mixing ratio by weight		for 100 g resin	g	100:30
Mixing ratio by volume		for 100 ml resin	ml	100:31
Density	25°C Hardener	IO-10-51 (ASTM D 1475)	g/ml	1,20 1,22
Pot life	25°C (40mm;100ml)	IO-10-53 (*)	min	30 40
Exothermic peak	25°C (50mm;200ml)	IO-10-53 (*)	°C	55 60
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	800 1.200
	40°C		mPas	600 1.000
Demoulding time	25°C (15ml;6mm)	(*)	h	10 15

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TYPICAL CURED SYSTEM PROPERTIES

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

Colour			Beige	
Density 25°C	IO-10-54 (ASTM D 792)	g/ml	1.20	1.24
Hardness 25°C	IO-10-58 (ASTM D 2240)	Shore A/15	70	75
Linear shrinkage 20 mm after 1 month RT	IO-10-74 a	%	0,10	0,20
Water absorption (24h RT)	IO-10-70 (ASTM D 570)	%	0,10	0,20
Water absorption (2h 100°C)	IO-10-70 (ASTM D 570)	%	0,30	0,40
Tensile strength	IO-10-63 (ASTM D 638)	MN/m ²	1,2	1,8
Elongation at break	IO-10-63 (ASTM D 638)	%	40	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.

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- Instructions:** Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping. Apply. The system is very moisture sensitive: it is therefore necessary to heat the plaster model with lac or other insulating agent suitable for humid surfaces and then apply several layers of release agent Z 15 LE and one final coat of Z 25 LE spray. The optimum thickness of resin to cast is between 1 and 3 cm. Avoid to create large differences in casted thickness that can be responsible of localized shrinkages or formation of holes inside the mass. If the product is casted on plaster nucleus it is necessary to insert mechanical constraints to improve adhesion.
- Curing / Post-curing:** Normally the post-curing is not necessary. Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best mechanical properties. Users should evaluate the best conditions of curing or post-curing depending on the component size and shape. For big size components decrease the thermal gradient and increase the post-curing time. In the case of thin layer applications and composites, post cure on the jig.
- 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. After that period or if the material has been stored in anomalous conditions, pre-filled resins can be settled down and their use is possible, only if they are accurately re-homogenized with the help, if necessary, of a mechanical mixer. 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 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.