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Product Information

Elan-tech®

EC 257/W 61

100:20

2-components thermal-resistance epoxy system for infusion

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Resin
EC 257

Hardener
W 61

Mixing ratio by weight
100:20

Application: High performance composite parts of medium and large size. Manufacturing of structural parts of boats and sport components.

Processing: Manual mixing or mechanical mixing with automatic mixing/dispensing machines. Wet lay-up or under vacuum infusion (SCRIMP) of glass, carbon, kevlar fabrics. Room temperature or hot curing. The post-curing in temperature is necessary to obtain the thermal resistance indicated.

Description: Two components unfilled epoxy system. Long pot life. Low viscosity. Solvent free. High thermal resistance. The system cured at RT may be brittle and it can be necessary the curing at 40°C before demoulding the model. The system is RoHS compliant (European directive 2002/95/EC) and the new RoHS Directive 2011/65/EU (RoHS 2) entered into force on 21 July 2011 and requires Member States to transpose the provisions into their respective national laws by 2 January 2013.

TYPICAL SYSTEM CHARACTERISTICS

Resin

Resin Colour				Pale/yellow
Viscosity 25°C		IO-10-50 (ISO3219)	mPas	1.900 2.200
Density 25°C		IO-10-51 (ASTM D 1475)	g/ml	1,14 1,18

Hardener

Hardener Colour				Pale/yellow
Viscosity at: 25°C		IO-10-50 (ISO3219)	mPas	5 15
Density 25°C		IO-10-51 (ASTM D 1475)	g/ml	0,92 0,96

Processing Data

Mixing ratio by weight		for 100 g resin	g	100:20
Mixing ratio by volume		for 100 ml resin	ml	100:25
Pot life	25°C (50mm;200ml)	IO-10-53 (*)	min	200 240
Exothermic peak	25°C (50mm;200ml)	IO-10-53 (*)	°C	210 230
Initial mixture viscosity at:	15°C	IO-10-50 (ISO3219)	mPas	600 1.000
	25°C		mPas	200 300
	35°C		mPas	70 130
Gelation time	25°C (1mm)	IO-10-73 (*)	h	10 14
Suggested curing cycles		(**)		16hrs 60°C + 4hrs 160°C

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TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 16hrs 60°C + 4hrs 160°C

Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,14	1,18
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	86	90
Glass transition (Tg)	16hrs at 60°C	IO-10-69 (ASTM D 3418)	°C	57	63
	2hrs at 160°C		°C	181	187
	4hrs at 160°C		°C	186	192
Maximum Tg	16hrs 160°C	IO-10-69 (ASTM D 3418)	°C	193	196
Flexural strength		IO-10-66 (ASTM D 790)	MN/m ²	114	128
Strain at break		IO-10-66 (ASTM D 790)	%	4,5	7,5
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m ²	2.700	3.300
Tensile strength		IO-10-63 (ASTM D 638)	MN/m ²	64	72
Elongation at break		IO-10-63 (ASTM D 638)	%	3,5	5,5

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: Verify and when necessary homogenize the components before use. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping. Apply. For the surface preparation (mould or model) refer to the release agents data sheet.

Curing/Post-curing: Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best properties. It is necessary when the component works at a high temperature. Post cure the tool up to 160°C increasing gradually 10°C/hour. Cool it down slowly. The rate of heating and the indicated post-curing time are referred to standard specimen size. 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 case of thin layer applications and composites, post cure on the jig.

Storage: Epoxy resins and their hardeners can be stored for two years in the original sealed containers stored in a cool, dry place. The hardeners are moisture sensitive therefore it is good practice to close the container immediately after each use.

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.