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Product Information

Elan-tech®

AS 89.1/AW 89.2

100:45

Cartridges kit ADH 891.892

Structural adhesive for carbon composite

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Structural adhesive	Resin AS 89.1	Hardener AW 89.2	Mixing ratio by weight 100:45
Cartridges kit	Cartridges kit ADH		Mixing ratio by volume 100:50

Application: Structural bonding thermal resistant. Adhesive for assembly of composite materials, metals, automotive components, sport components.

Processing: Brush application, by spatula or with mixing/dispensing devices. Room temperature or hot curing. The post-curing in temperature is necessary to obtain the thermal resistance indicated. Available also in cartridges of 400 ml.

Description: Two component unfilled epoxy system. Modified. Thixotropic. Easy mixing ratio 2:1 by volume. Solvent free. High toughness. Good thermal resistance. 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				Milky
Viscosity 25°C		IO-10-50 (ISO3219)	mPas	300.000 500.000
Density 25°C		IO-10-51 (ASTM D 1475)	g/ml	1,11 1,15

Hardener

Hardener Colour				Black
Viscosity at: 25°C		IO-10-95 (ISO3219)	mPas	300.000 450.000
Density 25°C		IO-10-51 (ASTM D 1475)	g/ml	0,96 1,00

Processing Data

Mixing ratio by weight		for 100 g resin	g	100:45
Mixing ratio by volume		for 100 ml resin	ml	100:50
Pot life	25°C (40mm;100ml)	IO-10-53 (*)	min	15 25
Exothermic peak	25°C (40mm;100ml)	IO-10-53 (*)	°C	125 145
Initial mixture viscosity at:	25°C	IO-10-50 (ISO3219)		- tix
Gelation time	15°C (1mm)	IO-10-88 (ASTM D5895-03)	h	4,5 5,5
	25°C (1mm)		h	2,0 2,5
Setting time	25°C 0,1 mm	(*)	min	200 - 220
Suggested curing cycles		(**)		2hrs at 80°C

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TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 2hrs at 80°C

Colour			Black	
Density 25°C	IO-10-54 (ASTM D 792)	g/ml	1,04	1,08
Hardness	IO-10-58 (ASTM D 2240)	Shore D/15	80	85
Glass transition (T _g)	24h at RT 2h at 80°C	IO-10-69 (ASTM D 3418)	°C	52 58
			°C	75 80
Shear strength by tension:				
- Aluminium cured 24hrs at 25°C (tested at RT)	IO-10-80 (ASTM D 1002)	MPa	18,0	22,0
- Aluminium cured 2hrs at 80°C (tested at RT)		MPa	27,0	33,0
- Inox steel AISI 316 cured 24hrs at 25°C (tested at RT)		MPa	20,0	24,0
- Inox steel AISI 316 cured 2hrs at 80°C (tested at RT)		MPa	29,5	36,5
Flexural strength	IO-10-66 (ASTM D 790)	MN/m ²	75	85
Maximum strain	IO-10-66 (ASTM D 790)	%	4,5	7,0
Strain at break	IO-10-66 (ASTM D 790)	%	6,0	10,0
Flexural elastic modulus	IO-10-66 (ASTM D 790)	MN/m ²	1.900	2.300
Tensile strength	IO-10-63 (ASTM D 638)	MN/m ²	50	60
Elongation at break	IO-10-63 (ASTM D 638)	%	4,5	7,0
Compressive strength	IO-10-72 (ASTM D 695)	MN/m ²	60	70
Peeling strength				
- Aluminium cured 2hrs at 80°C under press	ASTM D 1876	N/cm	50	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:** The surfaces must be clean and dry. Generally a mechanical abrasion or sanding followed by degreasing with solvent (ex. acetone) is sufficient. Add the appropriate quantity of hardener to the resin, mix carefully. Once applied, the system is moisture and carbon dioxide sensible: quickly cover the junction or cure in the oven. The final cleaning of the equipment can be carried out with normal solvent such as acetone, nitro, etc.
- 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.
- Storage:** Epoxy resins and their hardeners can be stored for two years in the original sealed containers stored in a cool, dry place.
- 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.