EN

Product Information

Elan-tech®
AS 89.1/AW 89.1 100:45

ADH 891.891

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Resin	Hardener	Mixing ratio by weight
AS 89.1	**AW 89.1**	**100:45**

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

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

Description: Two component unfilled epoxy system, modified, thixotropic. Easy mixing ratio 2:1 by volume. Solvent free. Sag resistance till 5mm. High toughness. Good thermal resistance. It is advisable that the curing of the system at temperatures not lower than 20-25°C.

SYSTEM SPECIFICATIONS

Resin					
Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	300.000	500.000
Hardener					
Viscosity at:	25°C	IO-10-95	mPas	170.000	350.000
Pot life	25°C (40mm;100ml)	IO-10-53 (*)	min	15	25

TYPICAL SYSTEM CHARACTERISTICS

Processing Data					
Resin Colour				Milky	
Hardener Colour				Black	
Mixing ratio by weight		for 100 g resin	g	100:45	
Mixing ratio by volume		for 100 ml resin	ml	100:50	
Density	25°C Resin	IO-10-51 (ASTM D 1475)	g/ml	1,11	1,15
Density	25°C Hardener	IO-10-51 (ASTM D 1475)	g/ml	0,95	0,99
Exothermic peak	25°C (40mm;100ml)	IO-10-53 (*)	°C	130	150
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	100.000	150.000
Gelation time	25°C (1mm)	IO-10-73 (*)	h	2,5	3,0
	35°C (1mm)		h	1,5	2,0
Setting time	25°C 0,1mm	(*)	h	3,0 - 4,0	
Suggested curing cycles		(**)		2hrs at 80°C	

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TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured:

Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,04	1,08
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	80	85
Glass transition (Tg)	24 h at R.T.	IO-10-69 (ASTM D 3418)	°C	54	60
	2hrs at 80°C		°C	80	86
Maximum Tg		IO-10-69 (ASTM D 3418)	°C	84	90
Shear strength by tension:					
- Inox steel AISI 316 cured 6hrs at 25°C (tested at RT)		IO-10-80 (ASTM D 1002)	MPa	13	17
- Inox steel AISI 316 cured 24hrs at 25°C (tested at RT)			MPa	19	23
- Inox steel AISI 316 cured 7days at 25°C (tested at RT)			MPa	21	25
- Inox steel AISI 316 cured 2hrs at 80°C (tested at RT)			MPa	26	32
- Inox steel AISI 316 cured 2hrs at 80°C (tested at 80°C)			MPa	14	18
- Aluminium cured 2hrs at 80°C (tested at RT)			MPa	26	32
- Aluminium cured 2hrs at 80°C (tested at 80°C)			MPa	14	18
- Carbon composite cured 24hrs at 25°C (tested at RT)			MPa	20	25
- Carbon composite cured 2hrs at 80°C (tested at RT)			MPa	32	39
Flexural strength		IO-10-66 (ASTM D 790)	MN/m²	80	90
Maximum strain		IO-10-66 (ASTM D 790)	%	5	8
Strain at break		IO-10-66 (ASTM D 790)	%	6	10
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m²	1.800	2.200
Tensile strength		IO-10-63 (ASTM D 638)	MN/m²	48	54
Elongation at break		IO-10-63 (ASTM D 638)	%	4	6
Compressive strength		IO-10-72 (ASTM D 695)	MN/m²	60	70

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 carbonic anhydride sensitive: 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.

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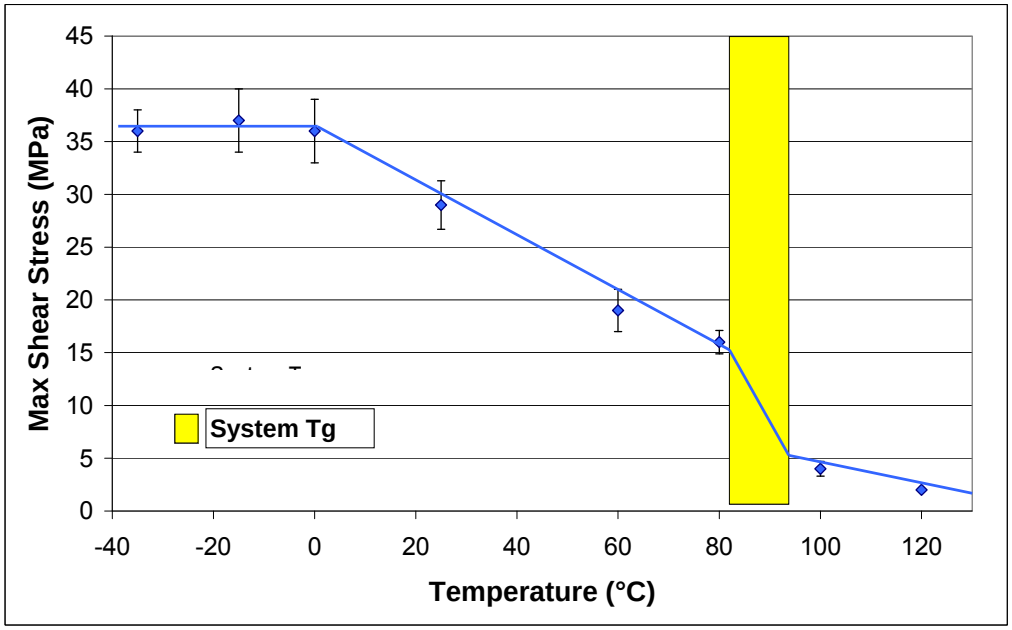
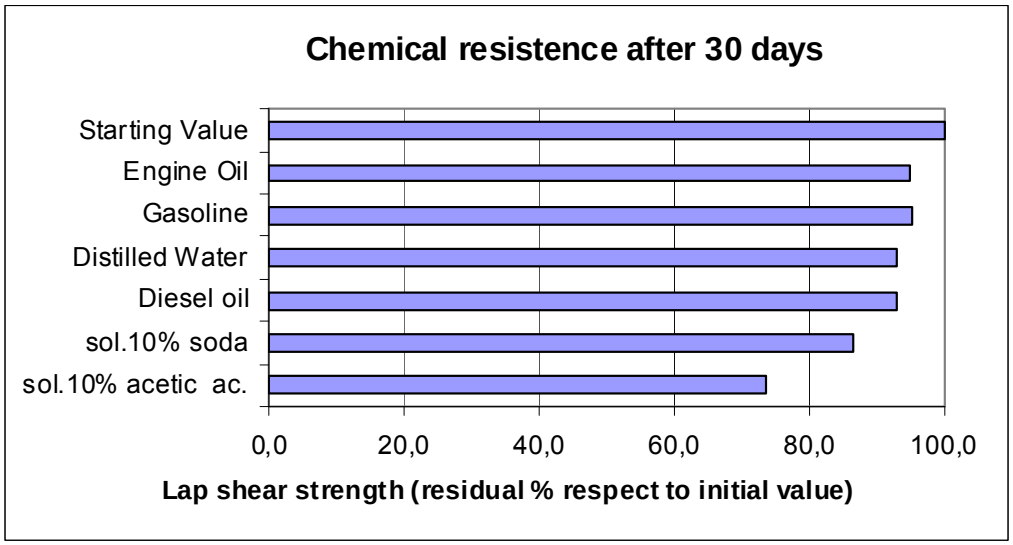
Dependence from temperature of the Lap shear strength (ASTMD1002)



Support: stainless steel
Curing cycle: 2hrs at 80°C

Lap shear strength after immersion in different media (ASTM D1002)



Support: stainless steel
Curing cycle: 2hrs at 80°C
The lap shear strength was determined after immersion for 30 days at 23±2 °C.