

EN

Preliminary Technical Data Sheet

**Elan-tech®****AS 99/AW 99**

Cartridges kit ADH

100:45

2K epoxy adhesive for carbon composite

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## Product description

- User friendly
- Easy application
- Very good ageing resistance
- Excellent peeling resistance
- Good temperature resistance

## Areas of application

Carbon composite, hybrid joints with different materials like metal inserts and epoxy composite parts, in automotive, sport items, other.

## Processing methods

Application by hand, cartridge or dispensing machine. Convenient mix ratio 2:1. To be applied on dry and clean substrate. Curing at room temperature or directly at 60-80 °C. Pretreatment of the surface might further improve the adhesion result.

## Curing/Post-curing

Post-curing is always advisable for Room Temperature 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 and stability

Epoxy resin and its amine based hardener 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.

## Typical product properties

### AS 99

Properties	Conditions	Test Method	Value	M/U
Colour		--	White	
Viscosity	25 °C	IO-10-95 (ISO 3219)	600000 ÷ 800000	mPa·s
Density	25 °C	IO-10-51 (ASTM D 1475)	1,09 ÷ 1,13	g/ml

### AW 99

Properties	Conditions	Test Method	Value	M/U
Colour		--	Black	
Viscosity	25 °C	IO-10-95 (ISO 3219)	300000 ÷ 420000	mPa·s
Density	25 °C	IO-10-51 (ASTM D 1475)	0,93 ÷ 0,97	g/ml

## Typical system properties

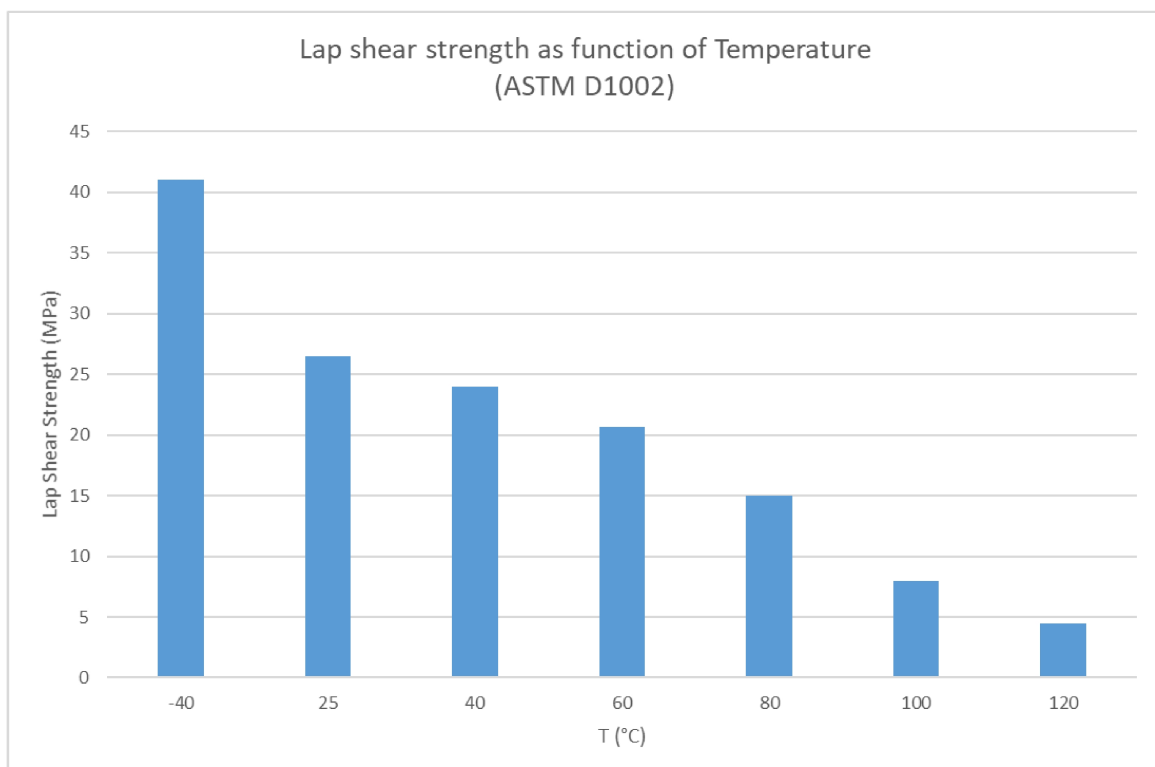
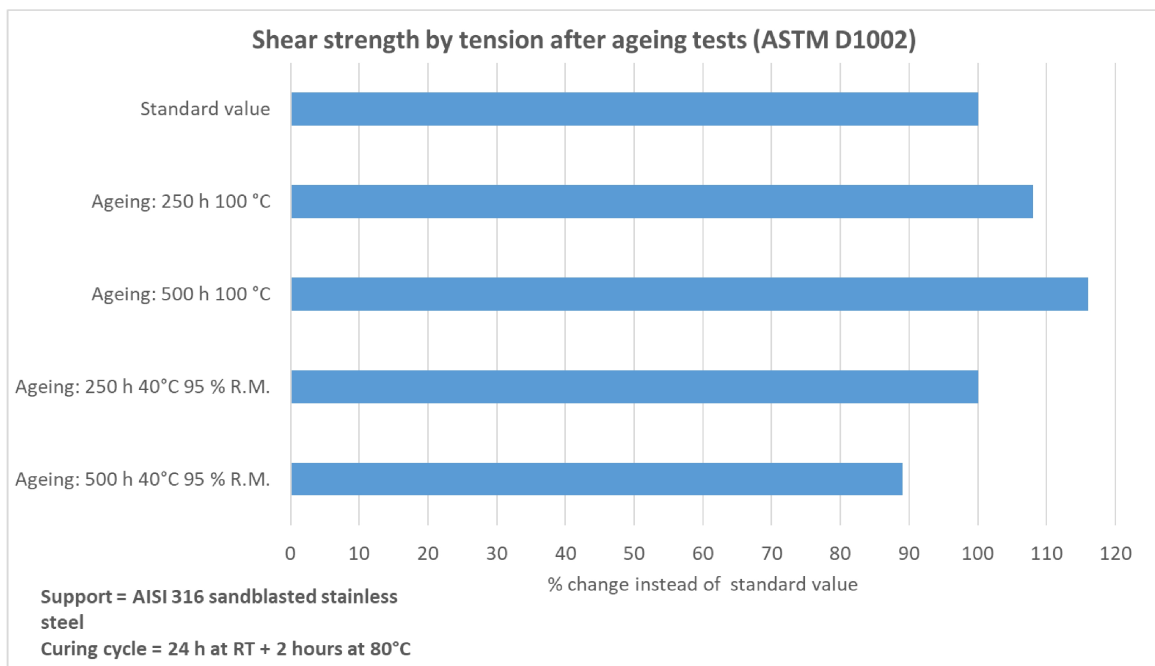
Properties	Conditions	Test Method	Value	M/U
Mix Ratio by weight		--	100 : 45	g
Mix Ratio by volume		--	100 : 50	ml
Initial mixture viscosity	25 °C	IO-10-95 (ISO 3219)	500000 ÷ 760000	mPa·s
Pot life	25 °C	IO-10-53 (*)	10 ÷ 16	min
Gel time (Tack Start/End)	25 °C - 1 mm - Tack End	IO-10-88 (ASTM D 5895-03)	110 ÷ 130	min
	15 °C - 1 mm - Tack End		230 ÷ 250	min
Setting time	25 °C - 0,1 mm	(*)	6 ÷ 8	hrs
Suggested curing cycles		(**)	24 h at RT + 2 h at 80 °C	

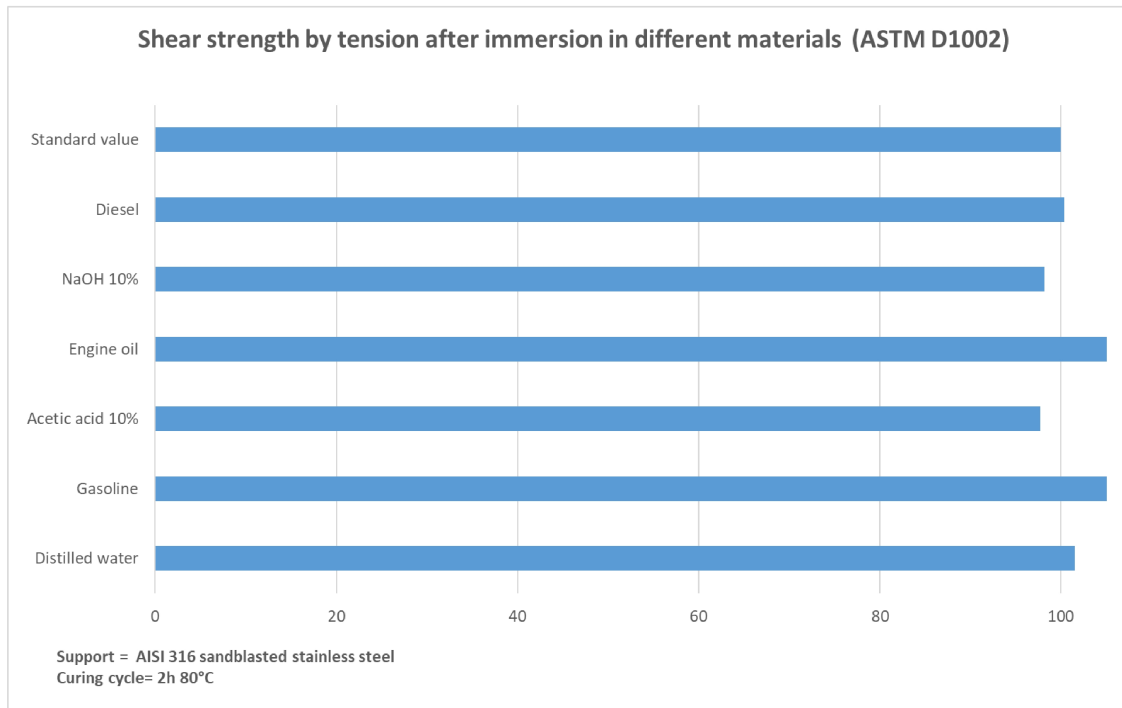
## Typical cured system properties

Properties	Conditions	Test Method	Value	M/U
Specimens curing cycle		--	24 h at RT + 2 h at 80 °C	
Colour		--	Black	
Density	25 °C	IO-10-51 (ASTM D 1475)	1,17 ÷ 1,23	g/ml
Hardness	25 °C	IO-10-58 (ASTM D 2240)	77 ÷ 81	Shore D/15
Glass Transition (Tg)	12 h at RT	IO-10-69 (ASTM D 3418)	42 ÷ 48	°C
	24 h at RT		48 ÷ 53	°C
	24 h at RT + 2 h at 80 °C		87 ÷ 93	°C
Maximum Tg	24 h at RT + 2 h at 80 °C	IO-10-69 (ASTM D 3418)	87 ÷ 93	°C
Water absorption (24 h RT)		IO-10-70 (ASTM D 570)	0,12 ÷ 0,18	%
Water absorption (2 h 100 °C)		IO-10-70 (ASTM D 570)	1,30 ÷ 1,60	%
Linear thermal exp. (Tg -10 °C)		IO-10-71 (ASTM E 831)	90 ÷ 95	ppm/°C
Linear thermal exp. (Tg +10 °C)		IO-10-71 (ASTM E 831)	200 ÷ 220	ppm/°C

## Typical mechanical properties in cured condition

Properties	Conditions	Test Method	Value	M/U
Specimens curing cycle		--	24 h at RT + 2 h at 80 °C	
Tensile strength	25 °C	IO-10-63 (ASTM D 638)	43 ÷ 50	MN/m²
Nominal strain at break	25 °C	IO-10-63 (ASTM D 638)	4,5 ÷ 6,5	%
Compressive strength	25 °C	IO-10-72 (ASTM D 695)	50 ÷ 55	MN/m²
Lap Shear Strength (LSS)	INOX Steel AISI 316 - 24 h RT + 2 h 80 °C	IO-10-80 (ASTM D 1002)	25 ÷ 30	MPa
	Aluminium - 24 h RT + 2 h 80 °C		20 ÷ 25	MPa
	CFRP - 2 h 80 °C (delamination of CFRP)		> 21	MPa
Flexural strength	25 °C	ASTM D 790	65 ÷ 75	MN/m²
Strain at maximum stress	25 °C	ASTM D 790	5,3 ÷ 8,0	%
Strain at break	25 °C	ASTM D 790	7,0 ÷ 11,0	%
Flexural elastic modulus	25 °C	ASTM D 790	1800 ÷ 2200	MN/m²





IO-00-00 = Elantas Europe internal 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 1 MN/m<sup>2</sup> = 10 kg/cm<sup>2</sup> = 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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