

EN

Technical Data Sheet

Elan-tech®**AS 89.1/AW 89.2 NF**

100:45

Cartridges kit ADH

2K epoxy adhesive for carbon composite

Product description

- User friendly
- Easy application
- Available in cartridges ADH 891.892 DARK GREY
- Different colour between resin/hardener to achieve a "Dark Grey"
- Very good ageing resistance
- Excellent peeling resistant
- 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.

Sales specifications

AS 89.1

Properties	Conditions	Test Method	Value	M/U
Viscosity	25 °C	IO-10-95 (ISO 3219)	300.000 ÷ 500.000	mPa·s

AW 89.2 NF

Properties	Conditions	Test Method	Value	M/U
Viscosity	25 °C	IO-10-95 (ISO 3219)	300.000 ÷ 420.000	mPa·s

Typical product properties

AS 89.1

Properties	Conditions	Test Method	Value	M/U
Colour		--	Milk-white	
Viscosity	25 °C	IO-10-95 (ISO 3219)	300.000 ÷ 500.000	mPa·s
Density	25 °C	IO-10-51 (ASTM D 1475)	1,11 ÷ 1,15	g/ml

AW 89.2 NF

Properties	Conditions	Test Method	Value	M/U
Colour		--	Black	
Viscosity	25 °C	IO-10-95 (ISO 3219)	300.000 ÷ 420.000	mPa·s
Density	25 °C	IO-10-51 (ASTM D 1475)	0,93 ÷ 0,97	g/ml

Typical system properties

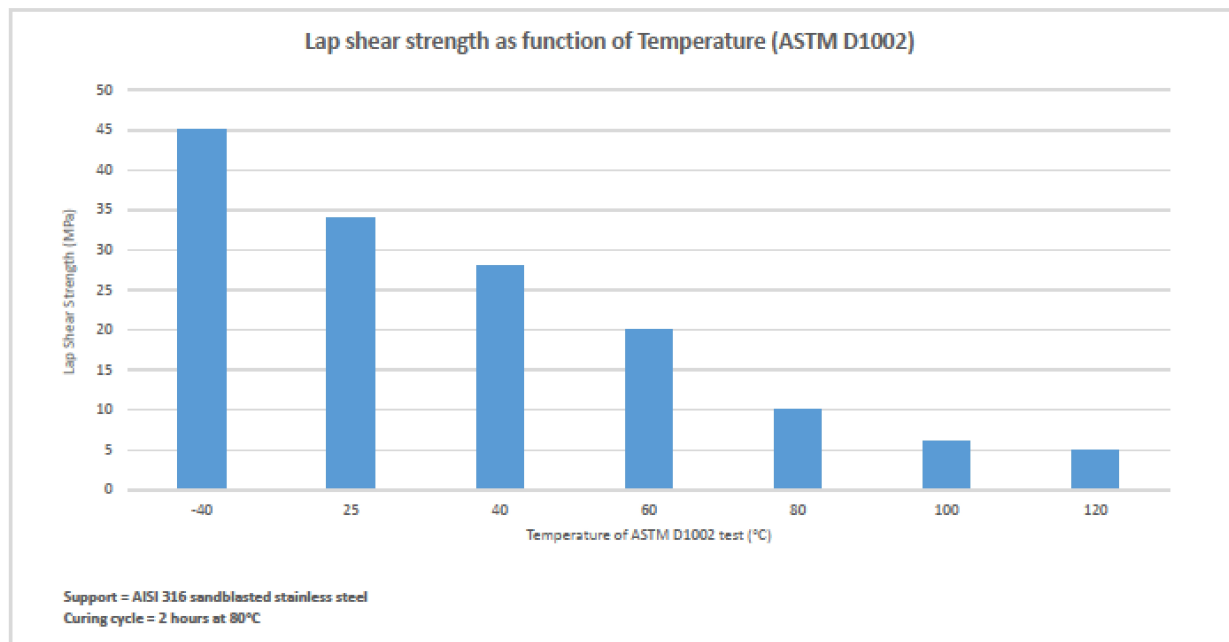
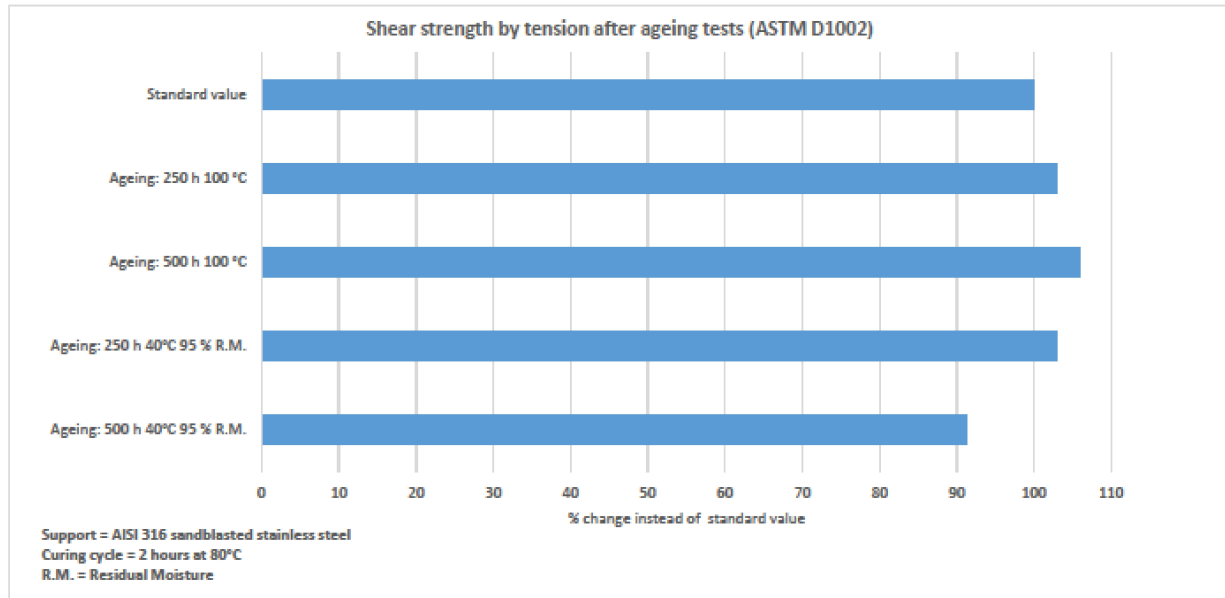
Properties	Conditions	Test Method	Value	M/U
Mix Ratio by weight		--	100 : 45	g
Mix Ratio by volume		--	100 : 50	ml
Initial mixture viscosity	25 °C	IO-10-95 (ISO 3219)	na	mPa·s
Exothermic peak	25 °C - 40 mm - 100 ml	IO-10-53 (*)	135 ÷ 160	°C
Pot life	25 °C - 40 mm - 100 ml	IO-10-53 (*)	15 ÷ 25	min
Gel time	15 °C - 1 mm	IO-10-88 (ASTM D 5895-03)	4,5 ÷ 5,5	hrs
	25 °C - 1 mm		3,5 ÷ 4,5	hrs
Setting time	25 °C - 0,1 mm	(*)	200 ÷ 220	min
Suggested curing cycles		(**)	2 h at 80 °C	

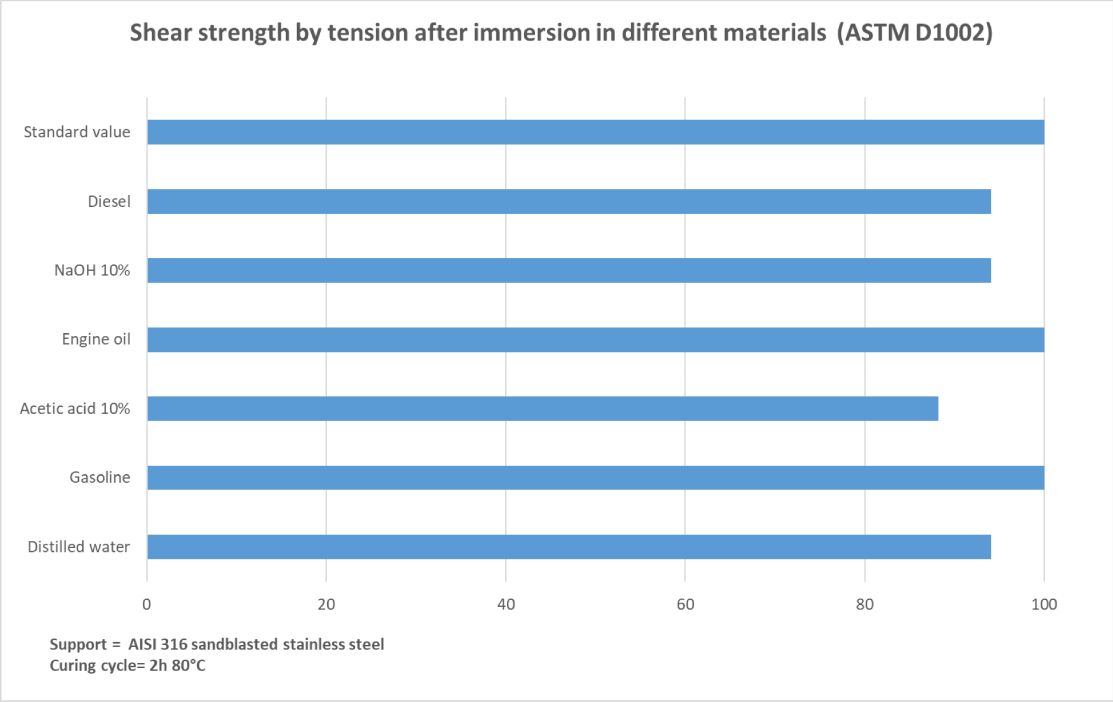
Typical cured system properties

Properties	Conditions	Test Method	Value	M/U
Specimens curing cycle		--	2 h at 80 °C	
Colour		--	Black	
Density (solid)	25 °C	IO-10-54 (ASTM D 792)	1,11 ÷ 1,15	g/ml
Hardness	25 °C	IO-10-58 (ASTM D 2240)	76 ÷ 80	Shore D/15
Glass Transition (Tg)	2 h at 80 °C	IO-10-69 (ASTM D 3418)	82 ÷ 88	°C
	24 h RT		52 ÷ 58	°C
Maximum Tg		IO-10-69 (ASTM D 3418)	82 ÷ 88	°C
Water absorption (24 h RT)		IO-10-70 (ASTM D 570)	0,13 ÷ 0,20	%
Water absorption (2 h 100 °C)		IO-10-70 (ASTM D 570)	1,5 ÷ 1,9	%
Linear thermal exp. (Tg -10 °C)		IO-10-71 (ASTM E 831)	92 ÷ 102	ppm/°C
Linear thermal exp. (Tg +10 °C)		IO-10-71 (ASTM E 831)	212 ÷ 222	ppm/°C

Typical mechanical properties in cured condition

Properties	Conditions	Test Method	Value	M/U
Specimens curing cycle		--	2 h at 80 °C	
Flexural strength	25 °C	IO-10-66 (ASTM D 790)	75 ÷ 85	MN/m²
Strain at maximum stress	25 °C	IO-10-66 (ASTM D 790)	4,8 ÷ 7,2	%
Flexural elastic modulus	25 °C	IO-10-66 (ASTM D 790)	1800 ÷ 2500	MN/m²
Tensile strength	25 °C	IO-10-63 (ASTM D 638)	50 ÷ 57	MN/m²
Nominal strain at break	25 °C	IO-10-63 (ASTM D 638)	4,5 ÷ 7,5	%
Compressive strength	25 °C	IO-10-72 (ASTM D 695)	54 ÷ 62	MN/m²
Peel Resistance (T-Peel Test)	Aluminium - 2 h 80 °C	ASTM D 1876	50 ÷ 60	N/cm
Lap Shear Strength (LSS)	Aluminium - 24 h RT	IO-10-80 (ASTM D 1002)	24 ÷ 30	MPa
	Aluminium - 2 h 80 °C		26 ÷ 32	MPa
	Inox steel AISI 316 - 24 h RT		24 ÷ 30	MPa
	Inox steel AISI 316 - 1 h 80 °C		26 ÷ 32	MPa
	Inox steel AISI 316 - 2 h 80 °C		30 ÷ 38	MPa
	CFRP - 24 h RT		12 ÷ 14	MPa
	CFRP - 1 h 80 °C		21 ÷ 26	MPa
	CFRP - 2 h 80 °C (delamination of CFRP)		> 30	MPa





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 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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