



## Adhesives & Sealants

# Elan-tech®

# Adhesives & Sealants



## Surface treatment and first operations :

A good bonding is the result of proper surface preparation. The adhesion is good when the surface is clean and:

- All impurities coming from the mechanical working, treatments, oxidations, residuals of release agents, have been removed.
- The surface to bond has been activated with primers or by treatments like flame, corona, or plasma, in order to improve the polarity and the presence of reactive groups.

Before bonding it is recommended to check the materials and to verify with a practical test or from laboratory literature the resistance of the substrate. Especially for plastic bonding, where the category is very wide as it includes a high number of different compositions, it is important to select with attention the proper treatment or chemical base of the primer.

## Cleaning and degreasing with solvents:

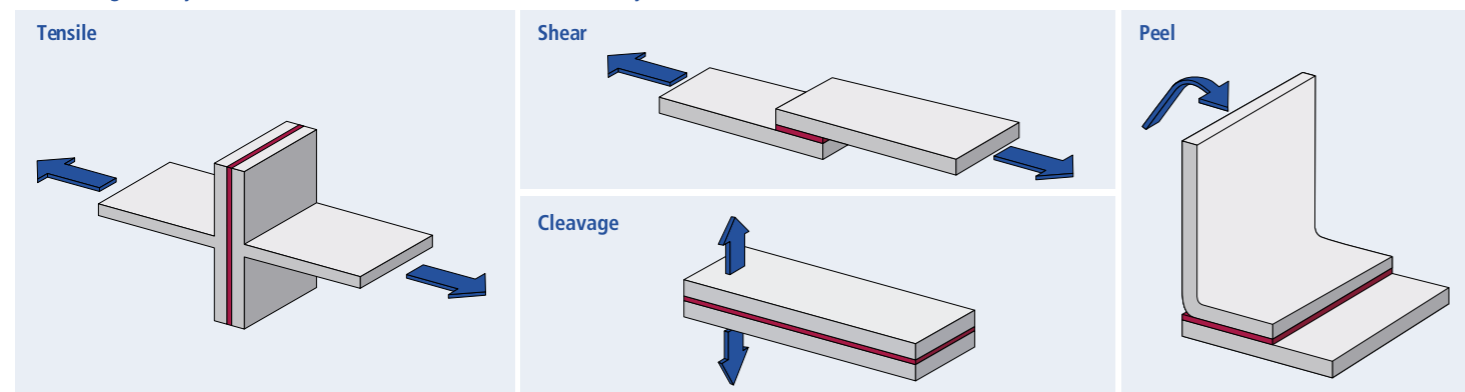
To remove oils and greases we recommend the use of solvents which do not leave residuals after drying. In the case of plastic substrates, it is important to verify the resistance of the material to the solvent. Alcohol based solvents work well with no, or limited, aggression on the supports. To remove lubricants we recommended a solvent based on, or containing, exane. Acetone, or ketons are considered quite aggressive on plastics and are mainly recommended for metals or rigid materials with high chemical resistance.

## Mechanical treatment (roughening, sand blasting, brushing):

Mechanical treatment is one of the used methods to remove oxidations on metals. The surface roughening improves the adhesion thanks to the fact that the overlapping area is increased. It is important not to exceed with the size of the grain, as it might result in a poor capability of the adhesive to wet properly the surface to bond. Recommended grain size is from 300 to 600 for Alluminium and about 100 on Steel. Roughening is possible on composite materials with some attention, due to the fact the fibers of the substrate might be damaged with the result of a more fragile composite. After any mechanical treatment, it is very important to remove all residuals and to clean/degrease with solvents.

## Geometry of the bond and strength:

a proper design of the bond is one of the most important aspect for an optimal use of the adhesive. Our technical service will help you to define the best material to match the geometry, stress, and substrates which the bond will be subjected.



Examples of bond geometries and stress mode.

## Chemical treatment

Recommended on very inert and resistant materials, or when it is not possible to work on the substrate. Forming reactive groups, which are not originally present on the surface, allows the adhesive to make a chemical bond.

## Treatment with primer

Primes are applied using specific substances in a solvent solution, to make a bonding layer between the reactive groups of the adhesive and the substrate. Before the application of the adhesive, it is very important to allow the primer to completely dry. This is because primers contain solvents which have to fully dry.

## Plasma treatment

This method is particularly effective on low surface energy substrates (e.g. Poliolephins and Plastics). The cleaning and activation of the surface takes place rapidly and with reliability, with no need of solvents or other dangerous products. Easy engineering of the treatment and required equipment, possible in different environments (vacuum, room pressure, nitrogen atmosphere or air). The treatment remains active for a limited time. The bonding is recommended within 24-36 hours.

## How to apply the adhesive and key aspects to keep in mind:

Elantas Europe adhesives are available in a cartridge kit, cans, tins and drums. Some basic precautions are important. When using a cartridge kit, it is important to remember to purge the first part of the mixed material coming from the static mixer, selected among the various sizes in function of the reactivity and viscosity of the adhesive. In most cases, two part systems (resin and hardener) are supplied with different colours. This helps in the case of manual application as it will be easier to see when the material is properly mixed. The adhesive must be applied homogeneously, with a thickness between 0.05 and 0.2 mm, and with the application of a uniform pressure on the bonding area. For most applications a suitable quantity of adhesive goes from 100 g to 400 g per square meter, with a resulting thickness of about 0,1 mm. Some adhesives, after the application, can be sensitive to humidity or inhibited by oxygen or carbon dioxide. It is advisable to close the joint in short time. The curing profile of the product is a function of its formulation, and must be adjusted to the specific testing and working conditions of the bonded device.

## Product selection

Recommended adhesives are based on our laboratory tests and application experience. Due to the wide possibility of compositions, grouped under the same chemical family, it is always a good practice to check the product on the specific material in use.

- = recommended
- = suitable
- = to be tested
- st = surface treatment



ADHESIVES	ABS	AL	CERAMIC	EPOXY RESINS	FERRITE	FRP EP	FRP UP	GLASS	STONE	NBR	PA	PBT - PET	PC	PMMA	PP - PE	PUR	PVC	SILICONE	STEEL	WOOD
AS 52 - AW 13	○	●	●	●	○	○	●	●	●	○	○	○	○	○	st	○	○		○	●
AS 52 - AW 14	○	●	●	●	○	○	○	○	●	○	○		○	○	st	○	○		○	○
AS 95.1 - AW 95.1	○	●	●	●	○	●	●	●	●	○	○	○	○	○	st	○	○		○	○
AS 46 - AW 46	○	●	●	●	●	●	●	●	●	●	●	●	○	○	st	●	●		●	●
AS 90 - AW 42	○	●	○	●	○	●	●	○	●	●	○	○	○	○	st	●	○		●	○
AS 50 - AW 50	○	●	○	●	●	●	●	●	○			○				○	○	○	●	○
AS 60 - AW 60		●	○	●	●	●	●	●			○					○	○		●	
AS 70 - AW 70		●	○	●		●	○	○	○			○				○			●	
AS 96.1 - AW 96.1	○	●	●	●	○	●	●	●	●	○	○	○	○	○	st	○	○		●	○
AS 97.1 - AW 96.1	○	●	●	●	○	●	●	●	●	○	○	○	○	○	st	○	○		●	○
AS 98 - AW 98	○	●	●	●	○	●	●	●	●	○	○	○	○	○	st	○	○		●	○
AS 89.1 - AW 89.2		●	○	●		●	●	○		○					st	○			●	○
AS 90 - AW 90	○	●	○	●	○	●	●		●	○		○	○	○	st	○			●	○
AS 90 - AW 91	○	●	○	●	○	●	●		●	○		○	○	○	st	○			●	○
AS 90 - AW 92	○	●	○	●	○	●	●		●	○		○	○	○	st	○			●	○
AS 90 - AW 93	○	●	○	●	○	●	●		●	○		○	○	○	st	○			●	○
AS 94 - AW 94 SLOW	●	●	○	●	○	●	●			●	○	●	○	○	st	●	●		●	
AS 15 - AW 15 - EF 18 T				●		●	○									○				○
AS 7 - AW 6		○	●	○		○	○		●										○	
AS 7 - AW 8		○	●	○		○	○		●										○	
ADH PU 3005	●	○		○		○	○	○		●	○	○	●	●	st	○	○		○	○
ADH PU 6005	●	○	○	○		○	●			●	○	●	●	●	st	●	●		●	○
ADH PU 8505	●	●	○	○		●	●			○	○	●	●	●	st	●	○		●	○
PC 200 - G 8		●	●	○		○	○		○	○					st	●			●	●
PC 200 DT - G 200		●	●	○		○	○		○	○					st	●			●	●
ASM 030		●	●	●	●	●					○	○		○	○				●	
ASM 101	○	○		●			○				●	○			○				○	
ASM 125		●	●	●	●	●		○			○	○			○				●	
Silicone Sealants	○	○	○	○	○	○	○	●	○	●	○	○	●	●	○	○	○	●	○	○
UV Curing adhesives	●		○	●	●	○	○	●		●	○	●	●	●	●	●	○		○	



TYPE	PRODUCT	CARTRIDGE CODE	ASPECT COLOR	SAG RESISTANCE	OPEN TIME FOR BONDING (1 mm - 25°C)*	GELIFICATION TIME (25°C - 0,1 mm)	SETTING TIME (25°C - 0,1 mm) LSS=1 MPa	CURING PROFILE > 50% LSS at 25°C	LSS at 25°C (0,1 mm)	TG MAX **	ELONGATION	OPERATIVE T RANGE ***	RECOMMENDED FOR	50 ml	210 ml	310 ml	400 ml	CANS PAILS DRUMS	MIXING RATIO	
			A+B	mm	min	min	min	hours	N/mm²	°C		°C								
EPOXY FAST BONDING	AS 52 - AW 13	ADH 52.13	pale yellow	NO	2	3	7	2	17	35	●●●	-40 / + 100	DIY, bricolage, fast bonding of various materials.	◇	◇		◇	O.R.	100:100	100:100
	AS 52 - AW 14	ADH 52.14	pale yellow	NO	20 ( sec )	70 (sec)	4	30 min	17	38	●●●	-40 / + 100	DIY, bricolage, very fast bonding of various materials.	◇				O.R.	100:100	100:100
	AS 95.1 - AW 95.1	ADH 951.951	transparent	3 - 4	2	5	20	6	20	98	●●●	-40 / + 120	Rapid (bead or points) bonding of transparent parts, glass, plastics.	◇	◇			O.R.	100:45	100:50
EPOXY MULTI - PURPOSE BONDING	AS 46 - AW 46	ADH 46.46	pale yellow	1-2	160	330	420	14	23	57	●●●	-40 / + 100	Slightly tixotropic, resilient, with long open time, for bonding skin/honeycomb/pvc foam panels and a good variety of materials.	◇			◇	◇	100:80	100:100
	AS 90 - AW 42	ADH 90.42	pale yellow	15	90	210	420	14	32	69	●●●	-50 / + 100	Highly tixotropic, resilient, with long open time, bonds magnets and a good variety of materials.				◇	◇	100:80	100:100
EPOXY HIGH THERMAL RESISTANCE	AS 50 - AW 50	ADH 50.50	dark grey	6	30	60	120	8	20	100	●	-40 / + 130 ****	Good thermal and chemical resistance, rigid, high modulus adhesive for metals, magnets, GRP.	◇	◇		◇	◇	100:50	100:50
	AS 60 - AW 60	ADH 60.60	grey	11	30	90	150 ( 40°C )	12	17	130	●	-40 / + 155 ****	Excellent thermal and chemical resistance, high modulus, rigid, very good for magnets.				◇	◇	100:50	100:50
	AS 70 - AW 70	ADH 70.70	grey	3	30	75	120	12	21	85	●	-40 / + 130 ****	Bondings with need of thermal conductivity and electrical insulation; flame retardant according to UL 94 V-0 and HB.	◇	◇		◇	◇	100:50	100:50
EPOXY CARBON COMPOSITES	AS 96.1 - AW 96.1	ADH 961.961	black	20	4	7	90	6	20	84	●●	-40 / + 110	Rapid (bead or point) fixing of composite and a good variety of materials.	◇			◇	O.R.	100:100	100:100
	AS 97.1 - AW 96.1	ADH 971.961	black	20	15	70	150	8	22	86	●●	-40 / + 110	Medium-rapid bonding of composites, and a wide variety of materials.	◇			◇	O.R.	100:100	100:100
	AS 98 - AW 98	ADH 98.98	beige	10	30	90	240	8	28	78	●●●	-40 / + 100	High peeling resistance and resilience, for bonding GRP, SMC, wood, in automotive and railway.	◇			◇	◇	100:100	100:100
	AS 89.1 - AW 89.2	ADH 891.892	black	8	65	135	210	12	36	80	●●●	-40 / + 110	Fatigue resistant for carbon composite parts, automotive and bike parts, high performance sport items.				◇	◇	100:45	100:50
EPOXY BOATS WIND BLADES SYSTEMS GL APPROVED	AS 90 - AW 90	ADH 90.90	beige	10	40	90	150	8	28	70	●●●	-50 / + 85	Fast, medium, slow, ultra slow reaction, for composites parts subject to flexural forces, high peeling resistance. Wind mill blades, railway and transportation, heavy duty, boating.				◇	◇	100:45	100:50
	AS 90 - AW 91	ADH 90.91	orange	10	150	330	420	12	27	78	●●●	-50 / + 110					◇	◇	100:45	100:50
	AS 90 - AW 92	n.a.	blue	15	240	540	14 h	24	28	78	●●●	-40 / + 110						◇	100:45	100:55
	AS 90 - AW 93	n.a.	green	15	400	840	24 h	24	32	78	●●●	-40 / + 110						◇	100:45	100:55
EPOXY SKI - SNOWBOARDS	AS 94 - AW 94 SLOW	n.a.	black or grey	1-2	80	210	3 - 100 C°	1,5 h ( 60°C ) or 15 m' ( 100°C )	26	67	●●●	-40 / + 90	Hot press bonding for ski, snowboard, kiteboard, high performance sport items.					◇	100:30	100:44
EPOXY BOARD TOOLS	AS 15 - AW 15 - EF 18 T	n.a.	green	15	50	110	210	8	9	100	●	-40 / + 120	For thermally resistant bonding of epoxy tooling boards for pre-preg tools. Post-curing is highly recommended.					◇	100:15:20	--
EPOXY STONE MATERIALS	AS 7 - AW 6	n.a.	pale beige	9	30	80	180	8	18	55	●	-40 / + 70	Marble, ceramic, beton plaqu�, honeycomb. Good resistance to yellowing.					◇	100:100	100:100
	AS 7 - AW 8	n.a.	pale beige	9	20	50	120	16	17	60	●	-40 / + 70	Marble, ceramic, beton plaqu�, honeycomb.					◇	100:100	100:85
PU REPAIRS E SEALINGS	--	ADH PU 3005	translucent	5	3	6	15	5	7	-5 / 0	●●●●●	-40 / + 90	Tixotropic PU adhesives, with various hardness (flexible, duroplastic, rigid.) Fast repair and bonding of thermoplastics, GRP, SMC, textures. Sealing of electrical components.	◇					100:112	100:100
	--	ADH PU 6005	translucent	5	3	6	15	5	11	48	●●●●●	-40 / + 90			◇				100:112	100:100
	--	ADH PU 8505	black	5	3	6	15	4	11	58	●●●●●	-40 / + 90			◇				100:112	100:100
PU CORE/SKIN PANELS	PC 200 - G 8	n.a.	beige	NO	120	240	360	24	14	24	●●●●●	-40 / + 80	PU adhesive for bonding of ceramic and marble, honeycomb, elements for thermal insulation.					◇	100:25	100:33
	PC 200 DT - G 200	n.a.	beige	4	30	90	180	24	14	32	●●●●●	-40 / + 80						◇	100:25	100:31
EPOXY 1-K HOT CURING	ASM 030	ASM 030	beige	4	180 ( 60°C )	n.a.	70 ( 110°C )	2 ( 120°C )	25	140	●	-40 / + 155	Ferrite, sinterized materials, magnets, thermally resistant materials.				◇	◇	1-K	
	ASM 101	ASM 101	blue	5	180 ( 60°C )	n.a.	n.a.	1 h 30' ( 120°C )	30	52	●●	-40 / + 65	Abrasive flap disks, high performance plastics.					◇	1-K	
	ASM 125	ASM 125	dark grey	n.a.	180 ( 60°C )	n.a.	60 ( 120°C )	1 ( 120°C )	30	130	●	-40 / + 155	Ferrite, sinterized materials, magnets, thermally resistant materials.				◇	◇	1-K	

\* = Max open time, on substrates, to achieve optimal adhesion.

\*\* = with recommended curing and post-curing profile ( see TDS ).

\*\*\* = the maximum temperature refers to an adhesion value of 3 MPa.

\*\*\*\* Maximum operating temperature refers to IEC 60085 (electric)

ELANTAS Europe s.r.l.  
Strada Antolini, 1  
Fraz. Lemignano  
43044 Collecchio (PR) - Italy

Tel. +39 0521 304777  
Fax +39 0521 804410

ELANTAS Europe GmbH  
Großmannstr. 105  
20539 Hamburg - Germany

Tel + 49 40 789460  
Fax + 49 40 78946276

engineeringmaterials.elantas.europe@altana.com  
www.elantas.com/europe

A member of  **ALTANA**



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# Elan-tech®

## Adhesives & Sealants

ELANTAS Europe is part of the division ELANTAS of the ALTANA group and is a leading manufacturer of insulating materials and specialty chemicals. Our portfolio includes wire enamels, impregnating resins and varnishes, casting and potting resins, electronic coatings, adhesives and flexible electrical insulation materials. In addition, we supply materials for other application areas such as special coatings, printed electronic products as well as tooling and composite materials.

As a specialist in formulating epoxy, polyurethane and silicone resins ELANTAS Europe has a deep knowledge in composite material development and applications. With our brand Elan-tech® we are offering a broad assortment of structural adhesives and sealants for a rapid bonding of composite and other materials.