



Adhesives & Sealants

Adhesives and sealants are essential components in many industries. Whether you are working in construction, automotive, or electronics industries, adhesives & sealants can provide a strong and durable bond that can withstand harsh environments and high levels of stress and strain.

Epoxy and PU bonding materials are two of the most popular types due to their numerous benefits and applications. One of the main benefits of epoxy bonding is its high strength and durability. Epoxy bonds are resistant to water, chemicals, and heat, making them ideal for use in harsh environments. Additionally, epoxy bonds can be used to fill gaps and voids, providing a smooth and even surface.

Polyurethane (PU) bonding is known for its flexibility and ability to absorb shock and vibration. PU bonds can withstand movement and deformation without cracking or breaking, making them ideal for use in applications where flexibility is required. Additionally, PU bonds are resistant to water, chemicals, and UV radiation.

With Elan-tech® ELANTAS Europe offers a wide range of 2K adhesives and sealants, based on PU and EP. Our materials are universally applicable and create stable and secure connections bonding for e.g. plastics, metals, stone and glass. Elan-tech® materials are suitable for all common surface treatments, including mechanical, chemical, treatment with primer and plasma treatments.



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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 aluminum 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.

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

Primers 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. Polyolefins and Plastics). The cleaning and activation of the

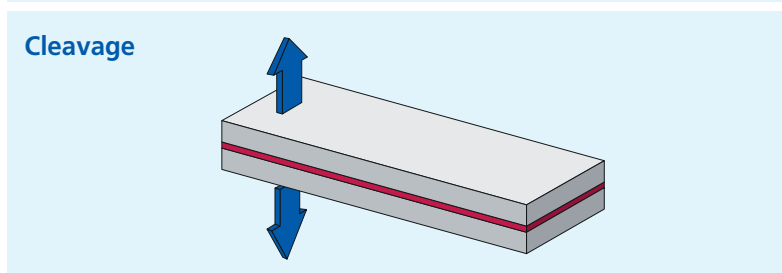
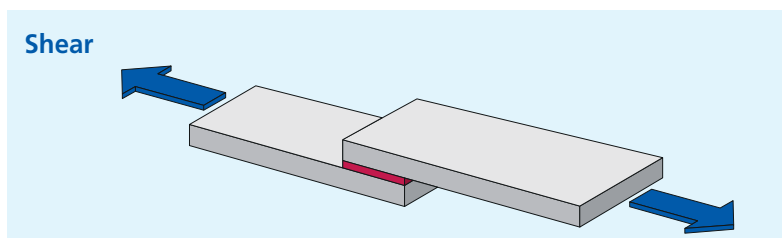
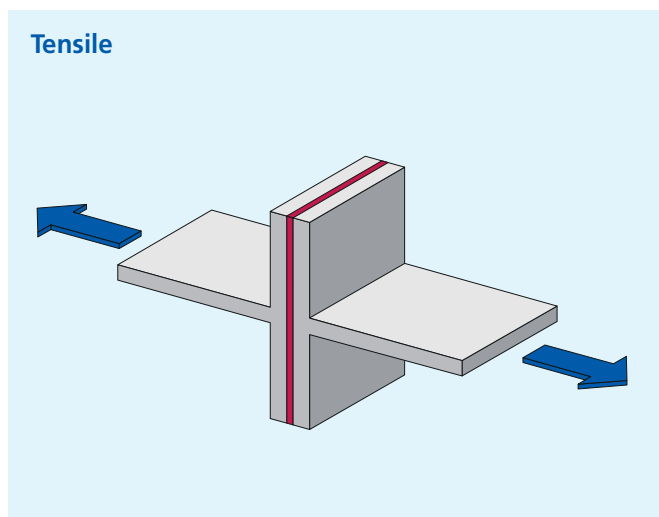
surface takes place rapidly and with reliability, with no need of solvents or other dangerous products. Easy engineering of the treatment and required equipment, possible in different environments (vacuum, room pressure, nitrogen atmosphere or air). The treatment remains active for a limited time. The 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 kits, 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

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.



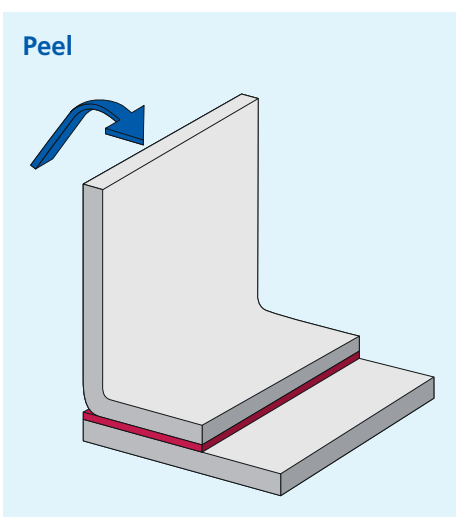
Examples of bond geometries and stress mode.



colours. This helps in the case of manual application as it will be easier to see when the material is properly mixed.

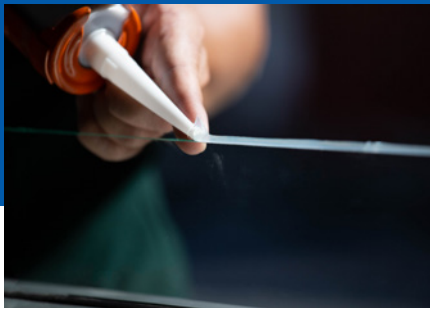
The adhesive must be applied homogeneously, with a thickness between 0.05 and 0.2 mm, and with the application of a uniform pressure on the bonding area. For most applications a suitable quantity of adhesive goes from 100 g to 400 g per square meter, with a resulting thickness of about 0,1 mm.

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.





Type	Product	Cartridge	Aspect	Gelification Time (25°C – 1 mm)	Setting Time (25 °C LSS = 1 Mpa)	
			A+B	min	min	
EPOXY BIO BASED	AS 74 bio - AW 74 bio	ADH 74.74 bio	black	300	4 hours	
EPOXY FAST CURING	AS 52 - AW 13 NC	ADH 52.13 USF	pale yellow	3	6	
	AS 52 - AW 14 NF	ADH 52.14	pale yellow	50 (sec)	4	
	AS 300 - AW 300	ADH 300.300	pale yellow	175	6	
EPOXY ACRYLATE	AS 95.1 - AW 95.1	ADH 951.951	transparent	4	20	
EPOXY ACRYLATE	AS 98 - AW 98 NF	ADH 98.98	beige	90	240	
EPOXY	AS 46 - AW 46	ADH 46.46	pale yellow	330	420	
EPOXY	AS 50 - AW 50.1	ADH 50.50	dark grey	60	80	
	AS 60 - AW 60.1	ADH 60.60	grey	90	150 (40°C)	
UL LISTED	AS 70 - AW 70	ADH 70.70	grey	75	120	
EPOXY ACRYLATE	AS 97.1 - AW 96.1	ADH 971.961	black	55	90	
EPOXY	AS 89.1 - AW 89.2 NF	ADH 891.892	black	240	210	
	AS 99 - AW 99	ADH 99.99	black	240	420	
	AS 90 - AW 90	ADH 90.90	beige	90	150	
	AS 90 - AW 91 NF	ADH 90.91	orange/blue	330	420	
	AS 90 - AW 92 NF	–	blue	540	11 hours	
EPOXY	AS 545-AW 545	–	black or grey	210	90	
EPOXY	AS 7 - AW 6 NF	–	pale beige	180	330	
	AS 7 - AW 8 NF	–	pale beige	50	120	
POLYURETHANE	PU 3005 A - G 3005	ADH PU 3005	translucent	6	15	
	PU 6005 A - G 6005	ADH PU 6005	translucent	6	15	
	PU 8505 A - G 8505	ADH PU 8505	black	6	15	
	CONAP AD 6415 A+B	ADH 6415 A+B	beige	30	180	
	CONAP AD 6453 A+B	–	light grey	120	240	
	PC 200 - G 8	–	beige	240	330	
	PC 200 DT - G 200	–	beige	40	15	
EPOXY 1-K	ASM 030 / ASM 031	–	black	n.a.	70 (110°C)	
	ASM 125	ASM 125	grey	n.a.	60 (120°C)	



	LSS at 25 °C (0,1 mm) up to ...	TG MAX	Recommended for	Mix Ratio by weight	Mix Ratio by volume
	N/mm2	°C			
	30	85	Bio based epoxy adhesive for bonding of various composite materials. Good thermal resistance.	100:45	100:50
	33	37	Transparent, fast bonding of various materials. Moderate temperature resistance.	100:100	100:100
	23	33	Transparent, very fast bonding of various materials. Moderate temperature resistance.		
	23	32	Tixotropic, fast curing, fast bonding of various substrates.		
	20	85	Rapid (bead or points) bonding of transparent parts, glass, plastics. Good temperature resistance.	100:45	100:50
	35	68	High peeling resistance and resilience, for bonding GRP, SMC, wood, aluminium.	100:100	100:100
	28	57	Slightly tixotropic, resilient, with long open time, for bonding skin/honeycomb/pvc foam panels and a good variety of materials.	100:80	100:100
	32	95	Good thermal and chemical resistance, rigid, high modulus adhesive for metals, magnets, GRP.	100:50	100:50
	19	130	High thermal resistance and good chemical resistance, high modulus, rigid. Recommended high temperature curing.		
	30	77	Bondings with need of thermal conductivity and electrical insulation; flame retardant according to UL 94 V-0 and HB.	100:50	100:50
	27	69	Medium-rapid bonding of composites, and a wide variety of materials.	100:100	100:100
	36	85	Fatigue resistant for carbon composite parts, automotive and bike parts, high performance sport items. Easy finishing before full curing.	100:45	100:50
	30	90	Fatigue resistant for carbon composite parts, automotive and bike parts, high performance sport items. Easy finishing before full curing.	100:45	100:50
	31	70	Fast curing, medium and slow curing hardeners combined to stiffened resin for bonding of elements subject to flexural forces, high peeling resistance. Wind mill blades, railway and transportation, heavy duty, marine.	100:45	100:50
	32	78		100:50	100:50
	32	88		100:45	100:55
	30	103	EN 45545 approved for Railway Applications; tixotropic, medium curing time.	100:50	100:50
	25	43	Marble, ceramic, beton plaqué, honeycomb. Good resistance to yellowing.	100:100	100:100
	25	53	Marble, ceramic, beton plaqué, honeycomb.		
	8	-9	Tixotropic PU adhesives, with various hardness (flexible, duroplastic, rigid.) Fast repair and bonding of thermoplastics, GRP, SMC, textures. Sealing of electrical components.	100:100	100:100
	11	48			
	11	58			
	10	-50	Semi liquid fast curing adhesive for flat membranes and various substrates. Suitable for drinking water application and FDA/NSF approvals.	54:100	50:100
	25	90	Flowable adhesive for various substrates. Suitable for drinking water application and FDA/NSF approvals.	100:50	100:50
	16	25	PU adhesive for bonding of ceramic and marble, honeycomb, elements for thermal insulation	100:25	100:33
	9	6		100:25	100:31
	20	140	Ferrite, sinterized materials, magnets, thermally resistant materials	1 k	1 k
	32	130			

Adhesives & Sealants

ELANTAS Europe is part 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 as well as adhesives and sealants. 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.

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