



Adhesives & sealants

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Epoxy adhesives (EP)

With these adhesives we can offer systems with a sheer strength of up to 40 Mpa as well as a peel resistance of up to 10 N/mm. They are therefore used as the adhesive of choice for extra-strong bonding in craft and industrial fields. These levels of strength can be further increased by the application of heat, and can then demonstrate temperature resistance from -30°C to $+120^{\circ}\text{C}$.



1-component epoxy resins

EP single-component systems are heat curing and are primarily used when high strength or high crash-strength are required, as well as ease of working. In 1-K systems the resin and hardener lie side by side in the mixture. The hardener is non-soluble at room temperature and dissolves only when heat is applied, which initiates the curing process. The advantage of this system is the simple application handling, as well as the fact that the operator does not have to perform the mixing and dosing measurement. Our 1-K epoxy resins possess an excellent long term durability coupled with high resistance to temperature changes.

Araldite®	1-component epoxy structural adhesive systems
BETAMATE™	1-component epoxy structural adhesive systems

2-component epoxy resins

EP 2-component systems harden at both cold and warm temperatures. The application of heat can reduce the curing time. Heat increases the interlocking density; the final strength tends to increase and stays at a somewhat higher level. In 2-component epoxy resin systems the working qualities of both components are adjusted to each other and are user-friendly. The dosage proportions are given by the manufacturer and can not be varied. The dosing, mixing and application can be done by hand or mechanically. The variable curing time and the continuously adjusted reactivity of the adhesive make 2-component epoxy adhesive systems as excellent problem-solvers where metals are used in the transportation sector or aircraft construction.

Araldite®	2-component epoxy structural adhesive systems
Araldite®2000	2-component epoxy structural adhesive systems
Epocast®	2-component epoxy structural adhesive systems
Epibond®	2-component epoxy structural adhesive systems
BETAMATE™	2-component epoxy structural adhesive systems



Polyurethane structural adhesives (PUR)

This type of polyurethane-based adhesive can also be obtained by our customers as a 1-component or a 2-component system. Polyurethane systems can harden to form elastomers or duromers; here the degree of interlinking and thus the strength is determined by the different raw materials, which are finally contained in the adhesive systems. We offer a wide range of applications from flexible to high rigidity both in 1-component and 2-component systems.

1-component polyurethanes

The single-component adhesives consist of prepolymers containing isocyanates, which harden when moistened. This reaction can take place in a temperature range from 5°C to 40°C , but a relative humidity of 40% to 70% is necessary. After hardening, the adhesive joint has the elasticity of rubber. These systems are ideal when using materials that have a large variation in the rate of expansion under temperature and load, as for example in fixing windows in vehicles, or bonding GFK glass-fibre-parts to steel, and aluminium parts to a steel substrate. In the European automotive industry BETASEAL™ systems are the market

leaders both for direct glazing of vehicles and for glazing repair. In addition to the appropriate adhesive systems, we offer all the necessary products for preparation and finishing, as well as the accessories required for the use of these proven window-fixing systems.

BETASEAL™	1-component/ 2-component polyurethane structural adhesive systems
BETALINK™ K1	1-component polyurethane structural adhesive systems
BETAFILL™	1-component polyurethane structural adhesive systems





2-component polyurethanes

The dual-component adhesives consist of the polyol components (A) and the isocyanate components (B) and have to be mixed and worked in fixed proportions. The adhesives are also available as highly inflammable systems. The adhesive layer of 2-component polyurethane systems hardens to a tough rigidity or a rubbery elasticity, depending on the proportion of raw materials used. We supply systems with a curing time ranging from 2 to 120 minutes, available in viscosities from volatile to highly viscous. Dual-component PUR adhesives suit perfectly to flat-surface bonding in vehicle construction, cladding and in shipbuilding. Other appropriate applications are, for example, high-value assembly bonding, plastics bonding, right-angle bonding, and also for use as castings or as adhesive for SMC building components.

BETAMATE™	2-component polyurethane structural adhesive systems
BETALINK™ K2	2-component polyurethane structural adhesive systems
Araldite® 2000	2-component polyurethane structural adhesive systems
Uralane®	2-component polyurethane structural adhesive systems

Methacrylate adhesives (MMA)

MMA adhesives are reaction adhesives based on methacryl acid esters. The curing of the reactive systems takes place on the principle of radical chain polymerisation. With the quick hardening MMA adhesives, shear strengths until 30 Mpa and above are achievable before ageing. In many cases, functional rigidity of 5 Mpa can be achieved after only 5 minutes.



2-component methacrylates

MMA adhesives harden to form thermoplasts and demonstrate good adhesion properties on plastics and metals, while being relatively insensitive to slightly greasy surfaces. These adhesives are generally required in twin-chamber cartridges with static mixing-tube for quick and easy application. For quantity production in large volume we do of course deliver the different components separately. Typical fields of application for these high-performance adhesives are the vehicle and railway construction industries.

Agomet®	2-component methacrylate structural adhesive systems
Araldite® 2000	2-component methacrylate structural adhesive systems
Crestabond®	structural adhesive systems

Adhesive pastes

Our adhesive pastes are based on urethane acrylate technology and exhibit exceptional impact strength, flexibility and toughness. These products were formulated specifically for the FRP (Fibre Reinforced Plastics) industry. Crystic® and Crestomer® products are available with a range of curing schedules to suit a variety of applications. They have the proven ability to work effectively for a range of bond thicknesses, from thin bond-lines of 1mm, to gap-fill bond-lines of 25 mm

Crystic®	adhesive pastes for fibre-reinforced plastics bonding
Crestomer®	adhesive pastes for fibre-reinforced plastics bonding



Phenol resins / Polycondensation adhesives

Depending on their composition, phenol resins harden at temperatures between 140°C and 200°C. The hardening process for phenol resins absolutely requires a temperature higher than 100°C. Phenol resins are distinguished by high adhesive stability and good mechanical properties. Furthermore they show good heat-resistance up to around 250°C. Phenol resins are ideal in applications where the adhesive layer is subject to high temperature and where safety considerations are a priority. Typical applications are the bonding of brake- and clutch-linings in vehicle construction.

Araldite®	Phenol-based polycondensation adhesive
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The Araldite® 2000+ series

The Araldite® 2000 Plus series offers solutions for 95% of all adhesive applications. The range includes high-performance adhesives based on polyurethane, esters of methacryl acid and epoxy resins. It includes adhesive systems with high load-tolerance for bonding metals and composite materials, elastic and flexible adhesive systems for bonding thermoplastics and dissimilar materials, slow-hardening adhesive systems for applying to large surface areas, adhesive systems that are resistant to high temperatures or chemicals, thick-paste adhesive systems - vertically applicable for filling cavities, transparent adhesive systems for bonding glass and other transparent substrates, as well as quick-hardening, multi-purpose adhesive systems.

Araldite® 2010-1	Fast curing, toughened, high shear and peel strength
Araldite® 2011	Multi purpose, long working life, good resistance to dynamic loading
Araldite® 2012	Fast curing, multi purpose, bonds a wide variety of materials
Araldite® 2013	Gap filling to 5 mm, metal coloured, suitable for vertical applications, resists chemicals
Araldite® 2014-1	High temperature resistance (until 120°C), high water and chemical resistance, gap filling, grey paste
Araldite® 2015	Gap filling to 10 mm, toughened paste, ideal for GRP, SMC
Araldite® 2018	Two component PU adhesive system, ideal for bonding thermoplastics, good UV stability, flexible
Araldite® 2021	Rapid cure, multi purpose, high peel strength
Araldite® 2022	Excellent resistance to petrol and oils, methacrylate adhesive for fast assembly operations on a wide range of substrates including those which can be difficult to bond
Araldite® 2040	Two component flexible polyurethane adhesive, ideal for bonding plastics, low shrinkage, gap filling, ideal for thick bond lines
Araldite® 2047	Methacrylate adhesive requiring minimal surface pre-treatment, good properties on otherwise difficult to bond substrates, high impact resistance over a wide temperature range, gap filling
Araldite® 2052	Methacrylate adhesive, very high temperature resistance (until 200°C), excellent chemical resistance, thixotropic paste, fast curing, good adhesion even without particular pre-treatment
Araldite® 2055	Two component gap filling polyurethane adhesive, long open time, resists weathering and humidity, low shrinkage, suitable for bonding a variety of metal and plastic substrates, gap filling

All products are available in 50 ml, 200ml and 400ml cartridges and 2kg working packs.



Cyanoacrylate adhesives

Cyanoacrylates are one-part adhesives and have been designed to cure by reacting to small traces of surface moisture. Cyanoacrylates cure within few seconds at room temperature. Cyanoacrylates provide excellent bonding performance for a large number of bonding metals, plastics or rubber. Materials which will be normally bond with difficulties as for example: POM, PP, PE, PET, EPDM or silicones can be bond very well with cyanoacrylates. As pre-treatment for these materials we recommend the Permabond® polyolefin primer.

Permabond® Cyanoacrylate adhesives

Environmentally friendly adhesives

Spray Adhesives have a very low VOC content and contain no hazardous air pollutants (HAP). With the portable canister, application can take place wherever required. Spray Adhesives are formulated to provide permanent bonding of a variety of general construction materials such as timber products, composites, polystyrene as well as many plastics. They are an excellent choice for use in many different industries such as furniture, high pressure laminates, RV, automotive headliners, upholstery and construction, to name just a few. Spray adhesives are particularly suitable in the marine industry because of their excellent water and humidity resistance. The portable canister system is easy to use and enables fast application. The low adhesive consumption also offers reduced cost benefits.

StarStuk™ Chlorine free sprayable adhesives

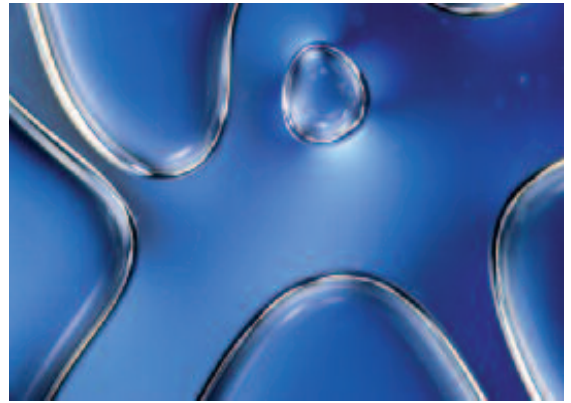
NauticGrip™ Adhesives for hybrid applications



Silan modified polymers

Silan modified polymer adhesives (often also called MS-Polymers) are elastic multi-purpose 1-component adhesives for a wide range of indoor and outdoor applications in a variety of industries. The main product attributes are: moisture curing, excellent sag resistance and gap filling, elastic with well balanced strength, primerless adhesion to a wide variety of substrates from metals over composites, glass and wood to most plastics, odourless curing, high temperature resistance, high UV resistance (non-yellowing, non-cracking) and free of isocyanates.

Araldite® 2060/2061	1-component adhesive based on silan modified polymers
Betamate® 31	1-component adhesive POP based



Hotmelts

Hotmelts are thermoplastic polyamids for bonding or moulding of a variety of materials. Hotmelts are applied hot on the surface and adhesion occurs during cooling. Key features of hotmelts are: low viscosity and easy processing, excellent low temperature flexibility, low temperature creep resistance and a broad softening range. The hotmelts we offer are 1-component polyamid adhesives with a setting time of just seconds. They offer very good mechanical properties from -40°C to well over 100°C and can be processed at temperatures from 130°C to 230°C.

Euremelt® thermoplastic hotmelt

UV-curing adhesives

These 1-component adhesives cure by a radical polymerisation. The important formation of the starting radicals is caused by the irradiation with UV light. The curing takes place afterwards within seconds. Our customers can benefit from our overall experience in bonding industrial parts together. We offer a complete solution for all your applications in the field of industrial bonding. The Single-part adhesive chemistry allows rapid preparation and application cure. Our Permabond® UV-curable adhesives are excellent for bonding glass to glass or glass to metal and for plastic applications. The increasing importance UV curing systems is clear regarding the many advantages: work safety, high assembly rates, short curing, curing on demand to allow proper alignment of components before bonding, solvent free and not flammable, environmentally friendly.

Permabond® UV-curing adhesives



Anaerobic adhesives

Anaerobic adhesives are used as 1-component-system. Assigned monomers of (modified) acrylic acid esters harden out like the methylmethacrylates by a radical chain mechanism. The curing process is only possible under exclusion of oxygen (anaerobic). This mechanism results at the same time in the main application. If anaerobic adhesives are used in a close metal gap by exclusion of oxygen, the hardening will be initiated. This enables long open times. Typical applications are retaining, threadlocking, pipe sealing and gasketing.

Permabond® Anaerobic adhesives

Silicon adhesives

Silicone adhesives stand up to tough demands for a variety of applications – including areas where organic material may struggle. Silicon adhesives are either curing at room temperature (RTV) or curing by heat (HTV). These products are classified as follows: acetoxy curing systems, alcoxy curing systems, oxime adhesives (neutral) and 2-component RTV silicone adhesives and sealants (polyaddition reaction). The outstanding performance of silicone adhesives are the well adhesion to a wide range of substrates, the thermal stability over a wide service temperature, a extreme weather resistance and UV durability, the excellent dielectric properties, the low flammability and the resistance or stability to a variety of chemicals.

Rhodorsil® / Bluesil™	Silicon adhesives
Rhodorseal® / CAF®	High-temperature silicones



Packaging adhesives

Paper converting

In this multi purpose scope of application Henkel as a leader has an extensive product range for almost all areas of packaging production. All adhesives are phthalate free, often meet the requirements / regulations of the FDA and BfR and are suitable in part for direct food contact.

The product range covers the entire range of viscosity. Packaging adhesives are in use which provide at optimum consumption high bonding reliability, at machine speeds > 500 m / min. Due to the high production standards and product quality smooth running properties are given, such as through nozzles <0.5 mm in diameter or disc and roller application.

Adhesin®	Waterbased Adhesives for packing and paper converting
Super-Lok®	Adhesives for packing and paper converting
Pur-Fect®	Hotmelt Adhesives
Purmelt®	Hotmelt Adhesives
Technomelt®	Hotmelt Adhesives
Liofol®	Special adhesives for patch and plastic bags
Envafilm®	Adhesives for Envelope manufacturing
Envafix®	Adhesives for Top flap gaming
Envagum®	Adhesives for Top flap gaming
Envatac®	Waterbased pressure sensitive adhesives
Euromelt®	Hotmelt Adhesives
Envatex®	Latexbased packaging adhesives

End of line

“Always the right adhesives for your requirements” under this definition, Henkel has developed trend setting Hot melts, with the product families Technomelt® and Coolmelt®. The Technomelt® Supra product range is the only line of high performance products in the adhesive industry of meeting your specific requirements for bonding integrity, productivity, utilisation cost and safety.

- High-quality bonding
- Broad service temperature range
- Low complexity (wide application window reduces the number of adhesives required)
- Attractive package appearance
- Safe working conditions
- Direct food contact approval
- Environmentally sustainable – due to the lower adhesive consumption

Technomelt® Supra	High performance hot melt
Coolmelt® Ultra	Low temperature hot melt



Processing aids for preparation and finishing of adhesion surfaces

Through the use of innovative materials and high-value structural adhesives the glazing of motor vehicles, as one example, has become an integral element of vehicle construction and meets the safety requirements that are specified world wide. In this context, appropriate products for the preparation and finishing of adhesion surfaces can make an important contribution to perfect adhesion.

BETACLEAN™	Cleaner for plastics, lacquer and glass
BETACLEAN™	PU remover
BETAPRIME™	Primer for plastics and glass
BETAWIPE™	PU activator

Application equipment and measurement technology

We offer the appropriate extrusion guns for all cartridge systems. The application equipment is available for both single and dual-component systems. These are either hand-held extrusion guns, or compressed-air or battery-driven systems. Mixing-tubes and diffusers as well as application-aids for all systems are also available.

We are happy to answer any questions from our customers about dose measurement technology, and here we are able to exploit the relevant expertise of our partner companies.





Reinforcing materials

Consisting of glass-fibre matting, polymer adhesive layer and separation paper, these reinforcements can be applied quickly and without difficulty to metal plate and durable plastics. The principle applications are typically to be found in automobile construction and lead to an improvement in bend-resistance, anti-torsion rigidity, impact-resistance and resistance to repeated flexion. A partial reinforcement with BETABRACE™ offers cost advantages over steel reinforcement components.

BETABRACE™ Polymer reinforcement material

Sound damping systems

BETAPHON™ is a pumpable, expanding, vibration-damping and impact-resistant coating for use, for example, in doors and floor-plates with corrosion-resistant properties, ideal for damping vibration.

BETADAMP™ and BETAFORM™ are self-adhering, multi-layered pressings for manual application and can be supplied in a wide variety of forms. Multi-layer systems absorb the vibration energy of the components on which they are affixed.

BETAPHON™ Pumpable soundproofing system

BETADAMP™ Self-adhering multi-layered soundproofing systems

BETAFORM™ Self-adhering multi-layered soundproofing systems

Technical self-adhesive tapes

MACbond is a range of double sided tapes with a filmic carrier coated with either rubber or acrylic adhesives. Our MACbond range meets a lot of professional needs in many industries by offering highly efficient solutions for applications such as bonding, mounting, sound dampening, placing gaskets and seals, etc. Thanks to its double-sided construction, the MACbond range can be enlarged with custom products (e.g. different thicknesses and adhesives types) when unique properties are required for specific applications.

MACmount is a range of double sided foam tapes coated with either rubber or acrylic adhesives. These tapes are ideal when working on uneven or dissimilar surfaces. The MACmount foam tapes are compressible and highly conformable and therefore adhere easily to irregular and/or curved substrates.

Our MACmount range offers different types of foams and adhesives to meet almost any requirement in terms of bonding, mounting, and insulating.

Don't hesitate to ask us for customized and converted tapes.

MACbond Double sided adhesive tapes

MACmount Double sided foam adhesive tapes

Sealing compounds

The sealing and insulating properties of our foam materials, and sealing and damping compounds, as well as their influence on acoustic qualities are familiar to us from the car-building industry. This experience enables us to offer solutions that meet the demands of your particular manufacturing processes in a wide range of different industrial applications. The BETAGUARD™ and BETAFILL™ products are excellent sealing compounds for the insulation lining between the outer and inner steel shell, as well for sealing the inner and outer seams. Applications are mainly in the automobile sector.

BETAGUARD™ Sealing compounds for automobile applications

BETAFFILL™ Sealing compounds for automobile applications



Gap filling systems (Acoustics and structural)

These extrudable polyurethane-based systems are chiefly injected into vehicle cavities in order to achieve a reliable bulkhead separation from wind noise (acoustic systems). A very good enhancement of rigidity by means of structural or rigidity foams provides high weight-saving potential improved crash performance, since it is possible to develop designs with thinner panels and without additional strengthening pieces.

BETAFOAM™ Extrudable PU-based noise-reduction system

BETAFOAM™ Extrudable PU-based rigidity system

BETAFOAM™ Extrudable PU-based structural foam system





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