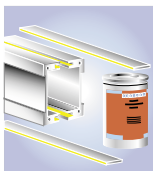
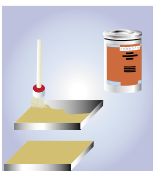




"No-Mix"

RK-Construction Adhesives

- high strength
- residual elasticity
- impact resistant



RK-Construction Adhesives

WEICON RK Construction Adhesives are 2-component systems based on methacrylate, which cure fast at room temperature. Both systems are processed in the “no-mix” procedure, i.e. a mix of both components (adhesive and activator) is not necessary. Polymerization starts as soon as the adhesive- and activator-wetted components are joined together.

WEICON RK Construction Adhesives allow high-strength bonding of different materials:

- Metals (also coated), such as steel, aluminium, copper, zinc, alloys, as well as ferrites (ferromagnetic material)
- Plastics*, such as ABS, polystyrene, hard PVC, polycarbonate, polyphenylene oxide, polyester moulding compounds
- Fibre composite materials (GRP, CRP, fibreglass etc.)
- Wood and cellulose materials (e.g. MDF)
- Glass, ceramics and stone

* Polyamide, Teflon® and polyolefin etc. only after special surface treatment, for example using fluoridation, low-pressure plasma, corona, flame impingement etc.



Bonding of aluminium parts (illuminated advertising)

Compared to other joining/fixing procedures WEICON RK Construction Adhesives have many advantages:

- Conventional fasteners are no longer necessary.
- Unlike in the case of welding and soldering, there are no changes in the material surfaces.
- Tensioning of the materials caused by thermal or mechanical stress does not occur.
- The specific material characteristics of different materials remain the same.
- By using newly developed, thinner and lighter materials, a simpler and more cost-efficient construction can often be realized, since these materials can only be joined with adhesives.
- When cured, the adhesive automatically forms a leak-proof coating, which prevents fretting corrosion.
- When joining different metals no contact corrosion is formed.



Bonding of hardened steel to ceramics

WEICON RK Construction Adhesives feature special product-specific characteristics:

- Processing in the “no-mix” procedure
- Quick and high initial bonding strength
- Residual elasticity and impact resistance
- Applicable at a large range of temperatures
- Ageing resistant

As a result, there are numerous areas of application, in particular during assembly and in industrial processing.

Due to the “no-mix” procedure and the quick, high initial bonding strength, WEICON RK Construction Adhesives are especially suited for manufacturing processes with staggered assembly and positioning processes and high cycle times during serial production.

Product descriptions, technical data, as well as information on processing and storage can be found on the following pages.



Bonding of aluminium shells

| Content | |
|---|-----------|
| Introduction | Page 2 |
| Product Description | Page 3 |
| Technical data | Pages 4-5 |
| Chemical stability | Page 6 |
| Processing, storage and physiological characteristics | Page 7 |

Two types with different material characteristics can be selected.

WEICON RK-1300

- High viscosity, 21.000 mPa.s (pasty)
- Can also be processed on vertical surfaces
- Quick initial bonding strength (handling strength after 6 minutes)
- High shear and peel strength
- Residual elasticity and impact resistance
- Colour tone beige, opaque

WEICON RK-1500

- Low viscosity 4.500 mPa.s (liquid)
- Easy processing on large bonding areas
- Quick initial bonding strength (handling strength after 5 minutes)
- High shear and peel strength
- Residual elasticity and impact resistance
- Yellow colour tone, transparent

Both WEICON RK Construction Adhesives can be applied universally and are equally suited for below listed areas of application; the type selection is made according to the special requirements "on site".



Bonding of name plates (steel / aluminium)

Examples of application in different sectors

Machine and apparatus engineering:

- Name plates, controls and instruments, consoles and profiles
- Mixers for the chemical industry

Metal construction

- Galvanized profile sheets for cabins or partitions
- Stripping devices for conveyor belts (e.g. tool steel with ceramic)
- Sorting devices for recycling plants (e.g. magnets on steel)

Automobile construction:

- Components on/in driver and passenger compartments, window frames, control panels, rear and side view mirrors.
- Name plates



Bonding of magnets (ferrite) on steel

Examples of application in different sectors

Tool and mould construction:

- Block materials made of MDF or PUR
- Name plates

Electrical engineering:

- Loudspeaker assembly
- Switch and relay housing
- Alarm devices and sensors,
- Magnet bonding

Construction and furniture industry:

- Window and door fittings
- Insulating wall panels on cooling doors
- Table and desk surfaces on conference chairs (aluminium die casting and different plastics)



Bonding of MDF plates (mould construction)

Lamp and lighting industry:

- Reflectors and housing parts
- Rail systems and spot lights

Sport devices and model sports:

- Fitness machines of all types
- Metal and plastic laminates, sandwich elements
- Radio remote-controlled airplane, ship and automobile models

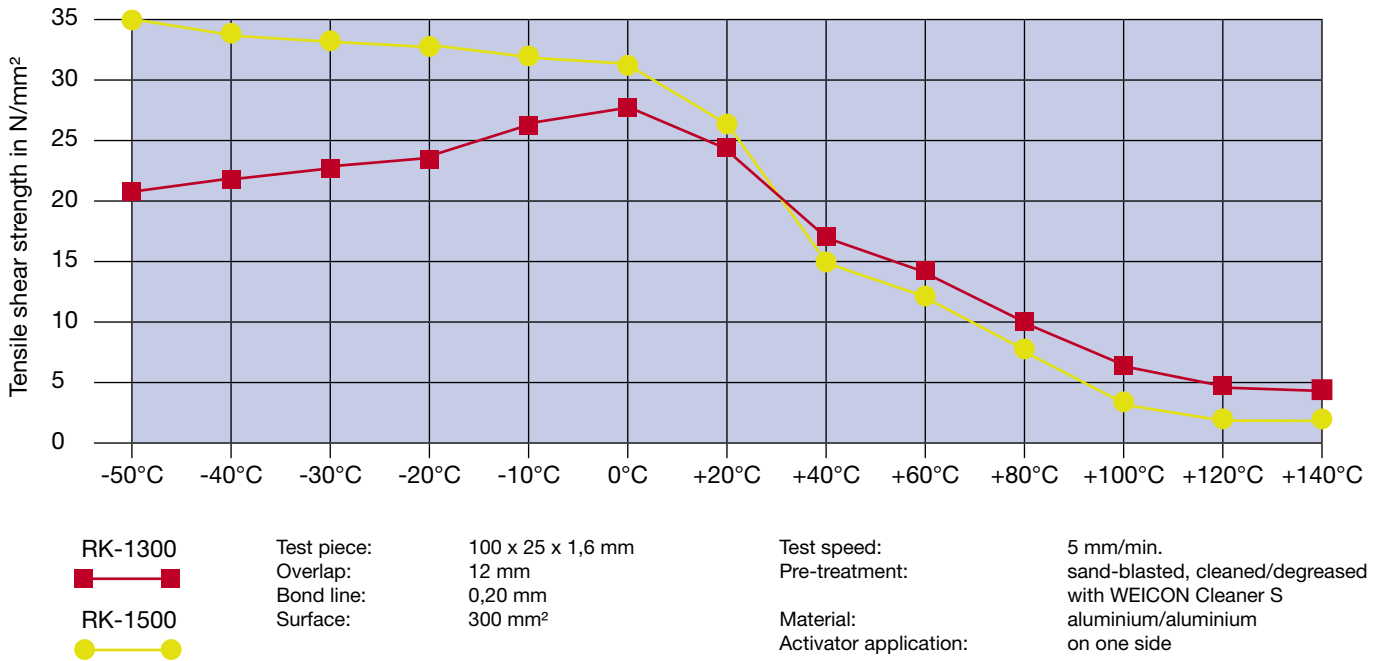
Technical data

| WEICON RK Construction Adhesive in non-cured condition | | | | |
|---|--|---|----------------------|---------------------------------------|
| Characteristics | | Product | RK-1300 | RK-1500 |
| Basis: | | Methyl methacrylate | | |
| Properties: | | pasty | | liquid |
| Viscosity at + 20°C: | Adhesive: | 21.000 mPa·s | | 4.500 mPa·s |
| | Activator: | very thin liquid | | |
| Specific weight: | Adhesive: | 1,20 g/cm ³ | | 1,00 g/cm ³ |
| | Activator: | 0,87 g/cm ³ | | 0,87 g/cm ³ |
| Colour: | Adhesive: | beige, opaque | | yellow, transparent |
| | Activator: | Colourless, transparent | | Colourless, transparent |
| Consumption depending on surface structure: | Adhesive: | 180 - 300 g/m ² | | |
| | Activator: | 30 - 150 g/m ² | | |
| Evaporation time of the activator at +20°C: | | 5 minutes | | |
| Effectiveness of the Activator after application at +20°C: | | max. 30 days | | |
| Processing temperature: | | +10°C to +30°C | | |
| Curing temperature: | | +6°C to +40°C | | |
| Positioning time of the parts coated with Activator and Adhesive at +20°C: | | 1 - 2 minutes | | |
| Gap covering power: (Bond lines of 0.15 mm to 0.25 mm in width have the highest strength). | | max. 0.40 mm (Activator application on one side* ¹) | | |
| | | max. 0.80 mm (Activator application on both sides* ¹) | | |
| Cure time at +20°C:* ² | Handling strength (35% stability) after: | 6 minutes | | 5 minutes |
| | Mechanical durability (50% stability) after: | 9 minutes | | 8 minutes |
| | Final hardness (100% stability) after: | 24 hours | | 24 hours |
| WEICON RK Construction Adhesive in cured condition | | | | |
| Average tensile shear strength after 7 days at +20°C and one-sided Activator application in accordance with DIN 53281-83: | Aluminium, sand-blasted: | 25 N/mm ² | | 26 N/mm ² |
| | Steel, sand-blasted: | 21 N/mm ² | | 25 N/mm ² |
| | Steel, galvanized: | 6 N/mm ² | | 4 N/mm ² |
| | Stainless steel, sand-blasted: | 26 N/mm ² | | 25 N/mm ² |
| | Brass, sand-blasted: | 25 N/mm ² | | 26 N/mm ² |
| | Copper, sand-blasted: | 26 N/mm ² | | 19 N/mm ² |
| | Polycarbonate, roughened: | 5 N/mm ² | | 8 N/mm ² |
| | ABS, roughened: | 6 N/mm ² | | 6 N/mm ² |
| | Hard PVC, roughened: | 7 N/mm ² | | 11 N/mm ² |
| | Polyamide 6.6, roughened: | 2 N/mm ² | | 3 N/mm ² |
| | GRP (polyester), roughened: | 8 N/mm ² | | 7 N/mm ² |
| GRP (epoxy resin), roughened: | 16 N/mm ² | | 20 N/mm ² | |
| Temperature resistance: | | -50°C to +130°C, short-term (30 minutes) up to +180°C | | |
| Peel resistance on aluminium: | | 6 N/mm | | 6 N/mm |
| Linear thermal expansion coefficient: | | 70 x 10 ⁻⁶ K ⁻¹ | | 80 x 10 ⁻⁶ K ⁻¹ |
| Thermal conductivity: | | 0,2 W/m·K | | |
| Electrical resistance: | | 10 ¹⁵ Ω/cm | | |
| Dielectric strength: | | 10 kV/mm | | |

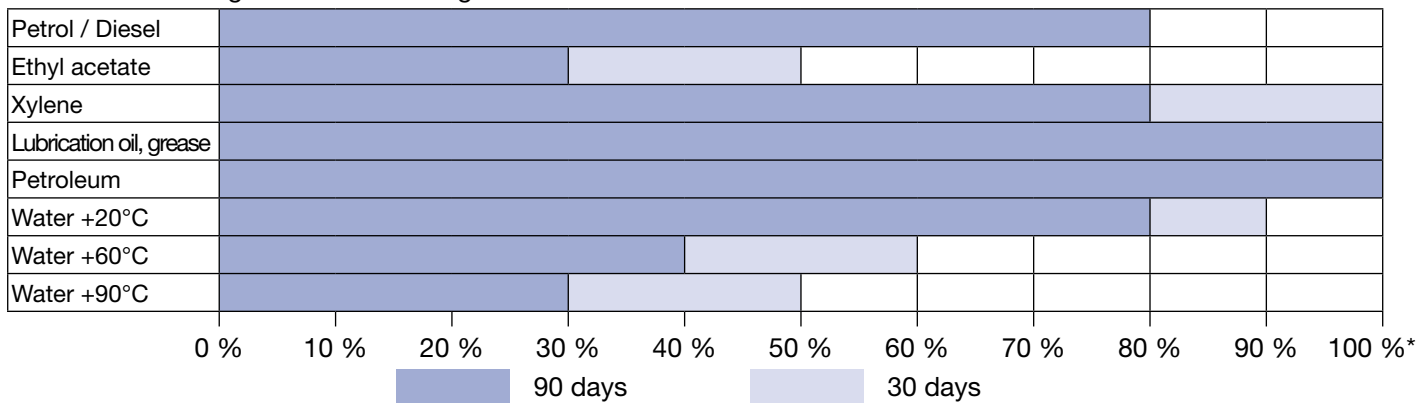
*¹ This information is dependent on the type of materials to be bonded and their respective properties. In case of porous materials or passive surfaces, such as chrome, nickel, etc. the Activator should be applied on both sides. (Bond lines of 0.15 mm to 0.25 mm in width have the highest stability).

*² High temperatures, e.g. +40°C shorten the positioning and curing times by approx. 30%. Low temperatures of approx. +10°C increase the respective times by approx. 50% and at approx. +5°C almost no reaction occurs.

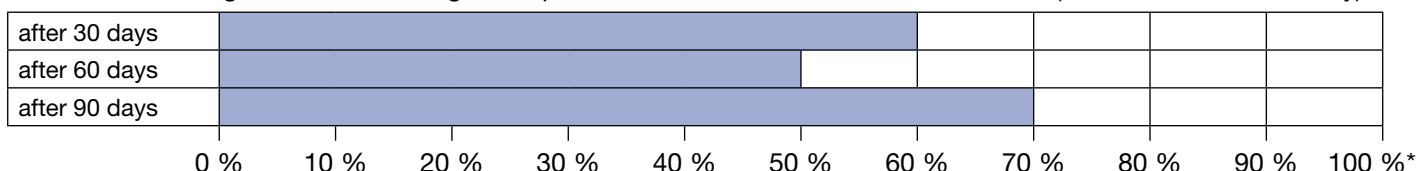
Tensile shear strength according to DIN 53283 depending on the test temperature



Tensile shear strength in % after storage in different media



Tensile shear strength in % after storage in tropical climate in accordance with DIN 50015 (+40°C and 92% humidity)



* Average tensile strength after 7 days at +20°C and one-sided Activator application in accordance with the stability table on page 4.

Chemical resistance after curing

| | | | |
|--|---|---|---|
| Acetone | + | Isopropyl acetate | + |
| Acidic vapours | + | Isopropyl alcohol | + |
| Alcohol | + | Isopropyl ether | + |
| Aliphatic hydrocarbons, (petroleum derivative) | + | Kerosene | + |
| Alkaline vapours | + | Ketone | + |
| Ammonia, ammonium chloride | + | Lubricating oils and grease | + |
| Ammonium chloride | + | Mercury | + |
| Aromatic hydrocarbons (benzoyl, methylbenzene, xylene) | 0 | Methanol (methyl alcohol) | + |
| Benzoyl | 0 | Methyl benzoyl | + |
| Benzoyl acid | + | Methyl chloride | 0 |
| Bilge medium (bilge water) | + | Methyl ethyl ketone | + |
| Brake fluid | + | Methyl isobutyl ketone, isopropyl acetone | + |
| Bromide solution | 0 | Methylene dichloride | + |
| Butyl alcohol (Isobutanol) | + | Mineral oil | + |
| Calcium chloride (sea salt) | + | Mineral turpentine | + |
| Calcium sulphate | + | Nitric acid 5% | + |
| Calcium sulphite | + | Nitric acid, fuming | - |
| Chlorinated hydrocarbon | + | Oxygen | - |
| Chlorinated salt water (swimming pool concentrate) | + | Ozone | - |
| Chlorinated solvent (dichloromethane) | - | Paraffin oil, kerosene | + |
| Chlorinated water (swimming pool concentration) | + | Perchlormethylmercaptan | + |
| Chlorine alcohol | + | Persulfuric acid 5% | + |
| Chlorine bleach | - | Petrol | + |
| Chlorine gas, liquid and dry | - | Phenol (Carbolic acid) | + |
| Chlorine sulphuric acid | - | Phenol resin | + |
| Chlorine, liquid and dry | - | Phosphoric acid 5% | + |
| Chloroform | + | Phthalic acid (benzene dicarboxylic acid) | + |
| Chromic acid 5% | + | Polyphosphoric acid 5% | + |
| Cooling lubricants | + | Potassium carbonate (potash) | + |
| Corrosive ammonium, ammonium hydroxide | 0 | Propyl alcohol | + |
| Cylinder oil | + | Selenium chloride | + |
| Dichloroethylene ether | + | Silicon oils | + |
| Epichlorohydrin | + | Sulphur dioxide, wet and dry | + |
| Freon | 0 | Sulphur trioxide gas | - |
| Fuel for jet or turbine engines | + | Sulphuric acid | 0 |
| Glycocol, glycine | + | Sulphuric acid, fuming | - |
| Heating oil, diesel | + | Tannic acid (gallotannic acid) | 0 |
| Heptane | + | Toluene (methylbenzene) | 0 |
| Hydrochloric acid (muriatic acid) | 0 | Toluene sulphuric acid | 0 |
| Hydrocyanic acid, prussic acid 5% | + | Trichloroethylene | + |
| Hydrogen bromide 5% | + | Turpentine, Turpentine oil | + |
| Hydrogen chloride | + | Waste water, excrements | + |
| Hydrogen fluoride (hydrofluoric acid) | - | Water | + |
| Hydrogen peroxide | 0 | Water, boiling | 0 |
| Hydrogen sulphide, wet and dry | + | Water, distilled | + |
| Isobutyl alcohol (isobutene) | + | Xylene (dimethylbenzoyl) | 0 |

+ = resistant

0 = resistant for a limited time

- = not resistant

Storage of the test pieces was at +20°C chemical temperature.



Activator application on plastic supports

Pre-treatment of surfaces

To ensure perfect bonding, the surfaces to be joined must be clean and dry (to clean and degrease use Cleaner S or Plastic Cleaner). The highest strength values can be achieved through additional pre-treatment of the surfaces, such as roughening using blasting or abrasive agents. Several plastics, in particular polyamide, Teflon®, polyolefin etc. are only to be bonded after special surface treatment, for example using fluoridation, low-pressure plasma, corona, flame impingement etc.

Processing of the RK Activator

The RK Activator is applied, depending on the size of the bonding gap, on either one side or both sides of the surfaces to be bonded (brush, spray, dip). In case of bond lines with a max. of 0.4 mm in width, the Activator only needs to be applied on one side, for bond lines of up to a max. of 0.8 mm in width and/or rough, porous or passive surfaces (chrome, nickel etc) the Activator must be applied on both sides.

For smooth plastic and metal surfaces, approx. 30 g/m² is necessary, for rough and porous surfaces up to 150 g/m² of Activator may be necessary. The evaporation time at room temperature (+20°C) is at least 5 minutes.

A significant advantage to other adhesive systems is that the coated components can be stored up to 30 days at room temperature (+20°C) without losing effectiveness.

Teflon® = registered trademark E.I. Du Pont



Bonding of plastic plates (mould construction)



Bonding of plastic supports

Processing of the RK Adhesive

The Adhesive is applied only on one side and normally on the surface which is not coated with Activator. The width of the bond line can be up to 0.80 mm (only if the Activator is applied on both sides). Bond lines of 0.15 mm to 0.25 mm in width always have the highest tensile shear strength.

Processing temperature

The processing should take place at room temperature (approx. +20°C). Higher temperatures, e.g. +40°C shorten the positioning and curing times by approx. 30%, lower temperatures of approx. +10°C increase the respective times by approx. 50% and up to +5°C almost no reaction occurs anymore.

Physiological properties / health and safety at work

WEICON RK Construction Adhesives, when properly handled and completely cured, are toxicologically essentially harmless. When using these adhesives, the physical, safety technical, toxicological and ecological data and regulations in our EC safety data sheets (www.weicon.de) must be observed.

Storage

WEICON RK Construction Adhesives have a shelf life of at least 12 months if stored in a dry room at a constant temperature of approx. +20°C. At temperatures between +1°C and +7°C the shelf life can be extended up to 24 months. This applies for closed original units which have not been directly or indirectly exposed to sunrays. In case of storage temperatures exceeding +40°C and high humidity, the shelf-life is shortened to 6 months.



Illumination bonding (aluminium / glass)

RK-Construction Adhesives

- high strength
- residual elasticity
- impact resistant

Distributed by:



Activator application on handrail end pieces
(Stainless steel/ stainless steel)



Activator application on a plastic block (mould construction)



Bonding of handrail end pieces
(stainless steel/stainless steel)



Activator application on scraper made of hardened steel

Any product specifications and recommendations given herein must not be seen as guaranteed product characteristics. They are based on our laboratory tests and on practical experience. Since individual application conditions are beyond our knowledge, control and responsibility, this information is provided without any obligation. We do warrant the continuously high quality of our products being free from defects in accordance with and subject to our General Sales Conditions. However, own adequate laboratory and practical tests to find out if the product in question meets the requested properties are recommended. A claim cannot be derived from them. The user bears the only responsibility for non-appropriate or other than specified applications.

1090/001 1/05 10 DC