Repair Sticks

A straightforward solution for all repair and maintenance work.

Easy to use:
Cut off – knead – apply
It can also be portioned at any time for small repairs.

The Repair Sticks are temperature-resistant from -50 °C to +120 °C (briefly up to +150 °C). They are resistant to alcohol, esters, salt water, oils and most alkalis and diluted acids. They contain no solvents and cure with virtually no shrinkage.
See resistance overview.

The cured material can be machined (drilled, filed or milled) and painted over without any prior treatment.

Repair Stick Titanium, item no. 115.01 (ID no. 114581)
For permanent, high-temperature-resistant (permanent up to +230°C and short-term up to +260°C) and wear-resistant repairs and bonding of metal parts, e.g. on:

- Tanks and pipes
- Aluminium, light metal and injection-moulded parts
- Shafts, plain bearings, pumps and housings
- Stripped threads.

It also can be used as a universal repair compound in mechanical engineering, plant engineering, container construction, apparatus engineering and many other areas.

Repair Stick Steel, item no. 115.11 (ID no. 114582)
Especially for quick and high-strength repairs and bonding of metal parts. For repairing and sealing cracks, holes, leaks and spills on:

- Machine parts
- Tanks and pipes
- Containers, pumps and housings
- Balcony railings and stair railings
- Stripped threads.

115.11

It also be used as a universal repair compound throughout the household, mechanical engineering, plant engineering, pharmaceutical industry and many other areas.

Repair Stick Aluminium, item no. 115.21 (ID no. 114583)
For quick, rust-free repairs and bonding of metal parts.
Repairs cracks, holes, leaks and seepage in:

- Gearboxes and containers
- Window frames and profiles
- Boats
- Model making (railways, cars, etc.)

115.21

and can be used as a universal repair compound in all areas of hobby, gardening, mechanical engineering, plant construction and many other areas.

Repair Stick Copper, item no. 115.31 (ID no. 114584)
For very quick (processing time 3 minutes) repairs of cracks, leaks and seepage, even on damp and wet surfaces such as:

- Pipes and pipe bends
- Fittings and flanges
- Copper gutters and sheets
- Water heaters and water tanks
- Hot and cold water pipes
- Freezers and air conditioning systems

115.31

and can also be used as a repair compound in trade, in the food, cosmetics and pharmaceutical industries and many other areas.

Repair Stick Stainless Steel, Item No. 115.41 (Ident No. 114585)
For non-corrosive repairs and touch-ups on stainless steel and other rustproof metals , such as:

- Tanks and containers
- Filling and packaging machines
- Pipes and lines
- Pumps and housings

115.41

Due to the rapid mechanical load capacity of the repaired parts (approx. 60 minutes), costly and time-consuming downtimes can be avoided.

	Aluminium	Stainless steel	Copper	Steel	Titanium
Metal (e.g. aluminium, cast iron, copper, stainless steel)	++	++	++	++	++
Hard plastic (e.g. epoxy resin, hard PVC)	+	+	+	+	+
Fibre composites (e.g. GRP, CFRP, fibreglass)	+	+	+	+	+
Wood (e.g. oak, beech, spruce, balsa)	+	+	+	+	+
Wood-based materials (e.g. plywood, MDF)	+	+	+	+	+
Glass and **ceramics**	+	+	+	+	+
Stone (e.g. marble, granite, brick, concrete)	+	+	+	+	+
Rubber/elastomers	-	-	-	-	-

Preferably suitable (++) Suitable (+) Not suitable (-)

Except for plastics such as polyethylene, polypropylene, polyacetate, polytetrafluoroethylene and other fluorinated hydrocarbons with naturally adhesive-repellent surfaces.
Within the scope of the above type recommendation, bonding of different material combinations, such as metal/plastic, is also possible.

Processing
Clean and dry surfaces are essential for perfect adhesion
(e.g. clean and degrease with spray cleaner S / item no. 3160/500).
Smooth surfaces can be roughened, e.g. by sandblasting.

Repair sticks bridge an adhesive gap of up to 15 mm per work step.
The specified drip time refers to a material quantity of 25 g at room temperature.
Larger quantities cure more quickly due to the typical reaction heat of epoxy resins (exothermic reaction).
Higher temperatures also shorten the pot life and curing time (rule of thumb: every +10 °C increase above room temperature shortens the pot life and curing time by half). Temperatures below +16 °C significantly extend the pot life and curing time. No reaction occurs below approx. +5 °C.

Physiological properties / occupational safety
Repair Sticks are largely physiologically harmless when handled properly and fully cured. The data and regulations in ourEC safety data sheet P 7-58 must be observed.

Storage
Unopened Repair Sticks can be stored for at least 18 months at a constant room temperature of approx. +20 °C in a dry place.
Avoid exposure to sunlight.

		Repair sticks in uncured state				
Product Properties		Titanium	Steel	Aluminium	Copper	Stainless steel
Base		Epoxy resin titanium filled	Epoxy resin metal filled	Epoxy resin aluminium filled	Epoxy resin copper filled	Epoxy resin stainless steel filled
Consistency		pasty				
Delivery form		Stick				
Contents		57g/115g	57g/115g	57g/115g	57g/115g	57g/115g
Mixing ratio by volume Resin / hardener (autom.)		1:1				
Topfzeit bei 25g Ansatzmenge und +20 °C (Minuten)		90 Min.	5 Min.	6 Min.	4 Min.	5 Min.
Density of mixture (g/cm³)		1,9	2,0	1,6	1,9	2,0
Temperature °C	Processing*1	+15 to +40	+15 to +40	+15 to +40	+15 to +40	+15 to +40
	Curing	+6 to +65	+6 to +40	+6 to +40	+6 to +40	+6 to +40
Colour		grey-green	dark grey	aluminium	copper	grey
Gap bridging up to max.*2		15 mm				
Curing times at +20 °C	Hand-tight (35% strength) after	60 Min.	10 Min.	10 Min.	10 Min.	10 Min.
	Mechanically loadable (50% strength) after	8 h	60 Min.	60 Min.	60 Min.	60 Min.
	Final hardness (100% strength) after	72 h (24 h at +65 °C)	24 h	24 h	24 h	24 h
		Repair sticks in hardened state				
Compression (DIN 53281-83)		80 N/mm²	80 N/mm²	80 N/mm²	80 N/mm²	80 N/mm²
Shore hardness D		80	80	80	80	80
Average tensile shear strength after 7 days at +20°C according to DIN 53283 at		Steel sandblasted	Steel sandblasted	Aluminium sandblasted	Copper sandblasted	Stainless steel sandblasted
		5,1 N/mm²	4,1 N/mm²	4,2 N/mm²	4,8 N/mm²	3,9 N/mm²
Temperature resistance °C		-50 to +280 (short-term +300)	-50 to +120 (short-term +150)			
Thermal conductivity (ASTM D 257)		0,50 W/m·K	0,60 W/m·K	0,65 W/m·K	0,70 W/m·K	0,60 W/m·K
Linear shrinkage*3		0,5 mm/m – ca. 0,05%				
Electrical resistance (ASTM D 257)		$5 \cdot 10^{11}$ Ω/cm				

Electrical breakdown strength (ASTM D 149)	3,0 kV/mm
Coefficient of thermal expansion (ISO 11359)	30-40 x 10^{-6} k^{-1}

*1) For easier processing, the sticks should be warmed to room temperature (+20 °C) at lower temperatures.
*2) Maximum application of 15 mm per work step.
*3) Measured on a mould measuring 900 mm x 75 mm x 10 mm after 7 days of storage at +20 °C.

Resistance overview

Exhaust fumes	+	Potassium carbonate	+
Acetone	o	Potassium hydroxide 0-20 % (caustic potash)	+
Ethyl ether	+	Milk of lime	+
Ethyl alcohol	o	Carbolic acid	-
Ethylbenzene	-	Creosote oil	-
Alkalis (alkaline substances)	+	Cresylic acid	-
Hydrocarbons, aliphatic (petroleum derivatives)	+	Magnesium hydroxide	+
Formic acid >10 % (methanoic acid)	-	Maleic acid (cis-ethylenedicarboxylic acid)	+
Ammonia anhydrous 25%	+	Methanol (methyl alcohol) <85 %	-
Amyl acetate	+	Mineral oil	+
Amyl alcohol	+	Naphthalene	-
Hydrocarbons, aromatic (benzene, toluene, xylene)	+	Naphthene	-
Barium hydroxide	+	Sodium carbonate (soda)	+
Petrol (92-100 octane)	+	Sodium bicarbonate (sodium hydrogen carbonate)	+
Hydrobromic acid <10 %	+	Sodium chloride (table salt)	+
Butyl acetate	+	Sodium hydroxide >20 % (caustic soda)	o
Butyl alcohol	+	Caustic soda	+
Calcium hydroxide (slaked lime)	+	Heating oil, diesel	+
Chloroacetic acid	-	Oxalic acid <25 % (ethanedioic acid)	+
Chloroform (trichlormethane)	o	Perchloraethylene	o
Chlorosulphuric acid (wet and dry)	-	Kerosene	+
Chlorinated water (swimming pool concentration)	+	Oils, vegetable and animal	+
Hydrochloric acid	+	Phosphoric acid <5%	+
Chromium bath	+	Phthalic acid, phthalic anhydride	+
Chromic acid	+	Crude oil	+
Diesel fuels	+	Nitric acid <5%	o
Mineral oil and mineral oil products	+	Hydrochloric acid <10 %	+
Acetic acid diluted <5%	+	Sulphur dioxide (wet and dry)	+
Ethanol <85 % (ethyl alcohol)	+	Carbon disulphide	+
Greases, oils and waxes	+	Sulphuric acid <5%	o
Hydrofluoric acid diluted	o	White spirit	+
Tannic acid diluted <7%	+	Carbon tetrachloride (tetrachloromethane)	+
Glycerin (trihydroxipropane)	+	Tetralin (tetrahydronaphthalene)	o
Glycol	o	Toluene	-
Humic acid	+	Trichloraethylene	o
Impregnating oils	+	Hydrogen peroxide <30 % (hydrogen superoxide)	+
Potash	+	Xylene	-

+ = resistant 0 = for a limited time - = not resistant *The storage of all WEICON Plastic Metal types was carried out at +20°C chemical temperature.

Applies to the following items:

RIEGLER Repair-Stick Titanium	
Item no.	Type No.
114581	115.01

RIEGLER Repair-Stick Steel	
Item no.	Type No.
114582	115.11

RIEGLER Repair-Stick Aluminium	
Item no.	Type No.
114583	115.21

RIEGLER Repair-Stick Copper	
Item no.	Type No.
114584	115.31

RIEGLER Repair-Stick Stainless Steel	
Item no.	Type No.
114585	115.41