

WEICON WL



surface coating / excellent base coat for stainless steel surfaces / with residual elasticity

The WEICON WL epoxy resin system is used to coat surfaces that are subject to stresses. It has a high adhesive strength, especially on stainless steel. It is liquid, sprayable, spreadable (can be applied with a brush), self-levelling, retains residual elasticity, is ceramic-filled and chemical-resistant.

Owing to its long pot life, WEICON WL can be used for applications with higher ambient temperatures or for larger surfaces. Due to the high flowability of WEICON WL, it is important to ensure a low layer thickness and to observe the layer sequence time.

WEICON WL is well suited for a system build-up in combination with other Plastic Metal types.

For example, the 2-component epoxy resin can be used as a primer when lining pump casings made of stainless steel that are subject to heavy stress. The surface coating can be used in the field of wastewater technology, on pumps, in water pumping, in mechanical and plant engineering, in apparatus engineering and in many other areas of industry.

Characteristics

| | |
|---------------------|---------|
| Base | Epoxy |
| Filler | ceramic |
| Texture | liquid |
| Colour after curing | white |

Processing

| | | |
|--------------------------|------------------------|-----------------------|
| Processing temperature | +15 °C to +40 °C | |
| Component temperature | >3 °C above dew point | |
| Relative air humidity | < 85 % | |
| Mixing ratio by weight | 100:22 | |
| Mixing ratio by volume | 100:46 | |
| Viscosity of the mixture | at +25 °C | ~ 7.000 mPa·s |
| Density of the mixture | 1,7 g/cm ³ | |
| Consumption | Layer thickness 1.0 mm | 1,7 kg/m ² |
| Max. layer thickness | per step | 20 mm |

Curing

| | | |
|------------------------|-----------------------|-----------|
| Pot life | at 20 °C, 500 g batch | ~ 70 min. |
| Additional layer after | (35 % strength) | 8 h |
| Working strength after | (80 % strength) | 18 h |
| Final strength | (100 % strength) | 36 h |
| Shrinkage | | 0,04 % |

Mechanical properties after curing

| | | |
|--|--|------------------------------|
| - Measured after curing at | | 24 h RT + 24 h 60 °C |
| Tensile strength | DIN EN ISO 527-2 | 35 MPa |
| Elongation at break (tensile) | DIN EN ISO 527-2 | 2,2 % |
| E-modulus (tensile) | DIN EN ISO 527-2 | 2400-2700 MPa |
| Compressive strength | DIN EN ISO 604 | 67 MPa |
| Bending strength | DIN EN ISO 178 | 39 MPa |
| Hardness (Shore D) | DIN ISO 7619 | 80±3 |
| Adhesive strength | DIN EN ISO 4624 | 15 MPa |
| Taber Test | DIN ISO 9352 (H18, 2 x 1 kg, 1000 rotations) | 0,9 g / 0,55 cm ³ |
| Lap shear strength material thicken. 1,5mm DIN EN 1465 | | |
| | Steel 1.0338 sandblasted | 14 MPa |
| | Stainless steel V2A sandblasted | 20 MPa |
| | Aluminium sandblasted | 9 MPa |
| | Galvanized steel | 4 MPa |

Thermal parameters

| | | |
|-------------------------------------|--------------------|-------------|
| Temperature resistance | -35 °C to +120 °C | |
| Tg after curing at room temperature | (DSC) | ~ 45 °C |
| Tg after tempering (at 120°C) | (DSC) | ~ 45 °C |
| Heat deflection resistance | DIN EN ISO 75-2 | 44 °C |
| Thermal conductivity | DIN EN ISO 22007-4 | 0,87 W/m·K |
| Heat capacity | DIN EN ISO 22007-4 | 1,4 kJ/KG·K |

Electrical parameters

| | | |
|------------|-------------------|--------------------------------|
| Resistance | DIN EN 62631 -3-1 | 7,84 · 10 ¹⁶ Ωm Ω·m |
| Magnetic | | no |

Note

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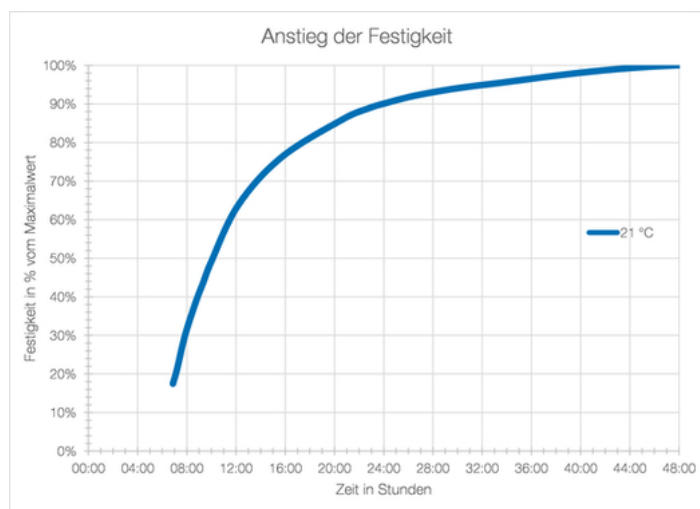
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WEICON WL



Instructions for use

When using WEICON products, the physical, safety-related, toxicological and ecological data and regulations in our EC safety data sheets (www.weicon.com) must be observed.

Surface Pre-Treatment

The successful application of WEICON WL depends on the thorough preparation of the surfaces. This is the most important factor for overall success. Dust, dirt, oil, grease, rust and moisture or wetness have a negative impact on the adhesion. Therefore, before processing WEICON WL, the following points must be observed: The surfaces must be free of any oil, grease, dirt, rust, oxides, paint and other impurities or residues. For cleaning and degreasing, we recommend WEICON Cleaner Spray S.

Smooth and particularly heavily soiled surfaces should additionally be treated by mechanical surface pre-treatment, e.g. by grinding or preferably by blasting. In case of blasting, the surface should be brought to a degree of purity of SA 2 ½ - "Near White Blast Cleaning" (according to ISO 8501/1-2, NACE, SSPC, SIS). In order to achieve an optimum surface roughness of 75 - 100 µm, angular, disposable blasting media (aluminum oxide, corundum) should be used. The surface quality is negatively influenced by the use of reusable blasting media (slag, glass, quartz), but also by ice blasting. The air for blasting must be dry and oil-free. Metal parts that have come into contact with sea water or other salt solutions should first be rinsed thoroughly with demineralised water and, if possible, left to rest overnight so that all salts can be dissolved from the metal. Before each application of WEICON WL, a test for soluble salts should be carried out according to the Bresle method (DIN EN ISO 8502-6).

The maximum amount of soluble salts remaining on the substrate should not exceed 40 mg/m². Heating and repeated blasting of the surface may be necessary to remove all soluble salts and moisture.

After each mechanical pre-treatment, the surface should be cleaned again with WEICON Cleaner Spray S and protected from further contamination until the coating is applied.

Areas where no adhesion to the substrate is desired must be treated with silicone-free mould release agents. For smooth surfaces, we recommend WEICON Mould Release Agent Liquid F 1000 or, for porous surfaces, WEICON Mould Release Agent Wax P 500.

After the surface pre-treatment, WEICON WL should be applied as soon as possible (within one hour) to avoid oxidation, flash rust or new contamination.

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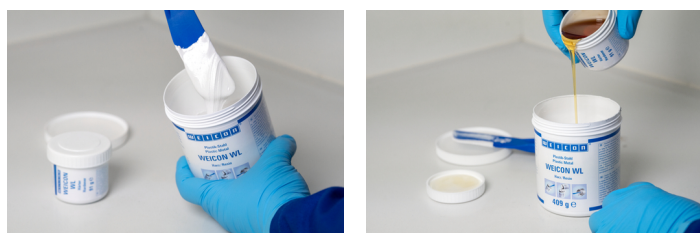
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Mixing

First, stir the resin. Then mix the resin and hardener together thoroughly and bubble-free for at least four minutes at 20°C (68°F). The included processing spatula or a mechanical mixer, such as the Stirrer Stainless Steel, can be used for this purpose. With mechanical mixers, a low speed of max. 500 rpm should be used. The components should be stirred until a homogeneous mixture is achieved. The mixing ratio of the two components must be strictly observed, as otherwise, strongly deviating physical values will result (max. deviation +/- 2 %). Only prepare a batch as large as can be processed within the pot life of 70 minutes. The indicated pot life time refers to a material batch of 500g and 20 °C (68° F) material temperature. Mixing larger quantities or higher processing temperatures will result in faster curing due to the typical reaction heat of epoxy resins.



Application

For processing, we recommend an ambient temperature of 20 °C (68 °F) at less than 85% relative humidity. The highest adhesive strength is achieved when the parts to be processed are heated to >35 °C (>95°F) before application. For a thin pre-coat, work WEICON WL intensively into the surface in crosswise layers using a paint brush to achieve maximum adhesion. By means of this technique, the epoxy resin penetrates well into all cracks and roughness depths. Afterwards, a second application with a paint brush or foam roller can be carried out straight away, until the desired layer thickness is reached.

A layer of approx. 0,25 to 0,50 mm can be achieved per work step. Make sure that the epoxy resin is applied evenly and without air bubbles. Further coats can be applied in each case after approx. 8 hours (layer sequence time).

Curing

Final hardness is reached after 36 hours at 20 °C (68°F) at the latest. At lower temperatures, the curing can be accelerated by evenly applying heat up to max. 40 °C (104°F), e.g. with a heating pack, hot air blower or fan heater. Higher temperatures shorten the curing time.

The following rule of thumb applies: Each increase by +10 °C (50°F) above room temperature (20°C/68°F) will decrease the curing time by half. Temperatures below 16 °C (61°F)

increase the curing time, until at approx. 5 °C (41°F) and below, almost no reaction will take place at all.

Storage

Store WEICON WL at room temperature in a dry place. Unopened containers can be stored at temperatures of +18°C to +28°C for at least 24 months after delivery date. Opened containers must be used up within 6 months.

Scope of delivery

Processing Spatula | Instructions for use | Gloves | Resin & Hardener

Accessories

| | |
|----------|---|
| 10026171 | Mould Release Agent Wax P 500, 0,5 kg |
| 10000147 | Cleaner Spray S, 500 ml, transparent |
| 10000347 | Cleaner S, 5 L, colourless, transparent |
| 10024313 | Surface Cleaner, 400 ml, transparent |
| 10025288 | Surface Cleaner, 5 L, transparent |
| 10026647 | Mould Release Agent Liquid F 1000, 250 ml, white, milky |
| 10053995 | Repair Stick Multi-Purpose, 115 g, vintage white |
| 10000913 | Glass Fibre Cloth Tape, 1 PCE, white |
| 10010887 | Processing Spatula, 1 PCE |
| 10022562 | Processing Spatula, 1 PCE |
| 10059417 | Brush 35 short, flat, Plastic Metal, 1 PCE |
| 10001978 | Stirrer Stainless Steel, 1 PCE |
| 10016002 | Pump Dispenser WPS 1500, 1 PCE |
| 10000441 | Cartridge Gun, 1 PCE |
| 10039667 | Cable Scissors No. 35, 1 PCE |
| 10045523 | Processing Kit, 1 PCE |

Recommended equipment

| | |
|---------------------------|-----------------|
| Angle grinder | PE film 0.2 mm |
| Blast machine | Fabric tape |
| Heat pocket | Brush |
| Hot or fan heater | Lint-free cloth |
| Smoothing trowel, spatula | |

Conversion table

| | |
|-------------------------------|----------------------|
| (°C x 1.8) + 32 = °F | Nm x 8.851 = lb·in |
| mm/25.4 = inch | Nm x 0.738 = lb·ft |
| µm/25.4 = mil | Nm x 141.62 = oz·in |
| N x 0.225 = lb | mPa·s = cP |
| N/mm ² x 145 = psi | N/cm x 0.571 = lb/in |
| MPa x 145 = psi | kV/mm x 25.4 = V/mil |

Available sizes

| | |
|----------|-------------------|
| 10067876 | WEICON WL, 0,2 kg |
| 10067882 | WEICON WL, 0,5 kg |
| 10067887 | WEICON WL, 2 kg |

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| | WEICON A | WEICON B | WEICON BR | WEICON C | WEICON F | WEICON F2 | WEICON HE 300 | WEICON HT 111 | WEICON SF | WEICON ST | WEICON TT | WEICON UW | WEICON WR2 | WEICON HP | WEICON Fire Safe | WEICON Anti-Static | WEICON Food Grade | WEICON Anti-Stick | WEICON Ceramic BL | WEICON GL | WEICON GL-S | WEICON Ceramic W | WEICON Ceramic HC 220 | WEICON WP | WEICON WR | WEICON CBC | |
|---|----------|----------|-----------|----------|----------|-----------|---------------|---------------|-----------|-----------|-----------|-----------|------------|-----------|------------------|--------------------|-------------------|-------------------|-------------------|-----------|-------------|------------------|-----------------------|-----------|-----------|------------|--|
| Repair and moulding | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | |
| Adhesive | | | | x | x | | x | x | | x | | | | x | x | | | | | | | | | | | | |
| Wear, erosion and corrosion protection – abrasion-resistant coating | | | | | | | | | | | | | | | | | x | x | x | x | x | x | x | x | x | | |
| Casting, relining and gap compensation – casting and injecting potting compound | x | | | | | | x | | | | | | x | | | | | | | | | | | | x | x | |

To the product detail page:



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Chemical resistance of WEICON Plastic Metals after curing* (Excerpt)

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

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

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