

WEICON Ceramic W



pasty
mineral-filled
wear-resistant

ISSA-Code 75.509.26/27
IMPA-Code 812941/42

The epoxy resin system WEICON Ceramic W offers high wear protection and high abrasion resistance. It is resistant to chemicals and has a high temperature resistance up to 200°C (392°F); for short periods of time even up to 260°C (500°F).

Ceramic W is non-drip, can be processed with a spatula, and applied on vertical surfaces or even overhead. It is suitable for adhesive bonding or lining aluminium oxide bricks in mill construction, for lining heavily stressed pump housings, as wear protection for slide bearings, slides and pipes, and wherever the use of dark products is not desired for visual reasons. It can be used in mechanical and industrial engineering, in mill construction, equipment engineering, and many other areas of industry.

Charakteristik

Base	epoxy
Filler	mineral-filled
Texture	pasty
Colour after curing	white

Processing

Processing temperature	+15 °C up to +40 °C
Component temperature	>3 °C above dew point
Relative air humidity	max. 85 %
Mixing ratio by weight	100:33
Mixing ratio by volume	100:35
Viscosity of the mixture at 25 °C and 20 1/s	600,000 mPa·s
Density of the mixture	1.6 g/cm³
Consumption at layer thickness of 1,0mm	1.6 g/cm²
Max. layer thickness per work step	10 mm

Note

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Curing

Pot life at 20°C, 500g batch	120 min.
Repeated application possible after (35% strength)	6 h
Capable of bearing mechanical loads (80% strength)	9 h
Final strength after (100% strength)	24 h
Shrinkage	0,12 %

Mechanical properties after curing

Tensile strength	DIN EN ISO 527-2	65 MPa
Elongation at break (tensile)	DIN EN ISO 527-2	0,8 %
E-modulus (tensile)	DIN EN ISO 527-2	8000-8400 MPa
Compressive strength	DIN EN ISO 604	89 MPa
Bending strength	DIN EN ISO 178	10 MPa
Impact strength	DIN EN ISO 179-1/1eU	16 kJ/m²
Hardness (Shore D)	DIN ISO 7619	87±3
Adhesive strength	DIN EN ISO 4624	7 MPa
Lap shear strength material thicken. 1.5mm	DIN EN 1465	
Steel 1.0338 sandblasted		4 MPa
Stainless steel V2A sandblasted		3 MPa
Aluminium sandblasted		3 MPa
Galvanized steel		2 MPa

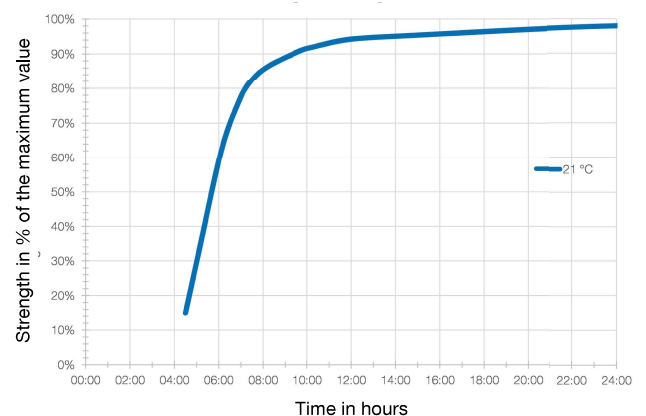
Thermal parameters

Temperature resistance	-35 °C to +200 °C, briefly to +260 °C
T _g after curing at room temperature (DSC)	approx. +60 °C
T _g after tempering (at 150 °C) (DSC)	+144 °C
Heat deflection temperature	DIN EN ISO 75-2 (B) +150 °C*
Thermal conductivity	DIN EN ISO 22007-4 0,7 W/m·K
Heat capacity	DIN EN ISO 22007-4 0,87 J/(g·K)

Electrical parameters

Resistivity	DIN IEC93	3,4·10 ¹² Ωm
Magnetic		no

Increase in strength



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 Ceramic W 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 Ceramic W, 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 Ceramic W, 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.

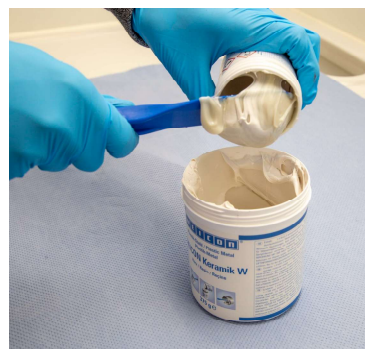
After each mechanical pre-treatment, the surface should be cleaned again with WEICON Cleaner Spray S and protected from further contamination until the coating is applied.

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 Ceramic W should be applied as soon as possible (within one hour) to avoid oxidation, flash rust or new contamination.

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 a mortar stirrer, 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 120 minutes. The specified pot life refers to a material batch of 500 g 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.



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Application

For processing, we recommend an ambient temperature of 20°C (68°C) 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 Ceramic W intensively into the surface in crosswise layers using the Contour Spatula Flexy to achieve maximum adhesion. By means of this technique, the epoxy resin penetrates well into all cracks and roughness depths. Afterwards, further applications can be carried out straight away, until the desired layer thickness is reached. Make sure that the epoxy resin is applied evenly and without air bubbles. To fill large gaps or holes, fibreglass, expanded metal or other mechanical fixation materials should be used. Finally, the surface can be smoothed easily with the help of a PE film and a rubber roller.

Curing

Final hardness is reached after 24 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 Ceramic W at room temperature in a dry place. Unopened containers can be stored at temperatures of +18°C to +28°C for at least 36 months after delivery date. Unopened containers must be used up within 6 months.

Scope of delivery

- 10953001 Processing Spatula, short (0.2 kg, 0.5 kg package)
 - 10953003 Processing Spatula, long (2.0 kg package)
 - 10953020 Contour Spatula Flexy
 - 10953015 Protective Gloves
- Instructions for use

Accessories

- 11202500 Cleaner Spray S, spray can 500 ml
- 15200005 Cleaner S, canister 5 l
- 11207400 Surface Cleaner, spray can 400 ml
- 15207005 Surface Cleaner, canister 5 l
- 10604025 Mould Release Agent Liquid F 1000, 250 ml
- 10604515 Mould Release Agent Wax P 500, 150 g
- 10539115 Repair Stick Multi-Purpose 115 g
- 10850005 Glass Fibre Cloth Tape, 50 mm x 1 m
- 10953001 Processing Spatula, short
- 10953003 Processing Spatula, long
- 15841500 Pump-Dispenser WPS 1500
- 52000035 Cable Scissors No. 35
- 10851010 Processing-Kit

Recommended tools

- Angle grinder
- Blast machine
- Heating pack, hot air blower or fan heater
- Smoothing trowel, spatula
- PE foil 0.2 mm
- Fabric tape
- Paint brush, foam roller
- Rubber roller
- Lint-free cloths

Available sizes

- 10460002 WEICON HP 0.2 kg
- 10460005 WEICON HP 0.5 kg
- 10460020 WEICON HP 2.0 kg

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/mm² x 145 = psi	N/cm x 0.571 = lb/in
MPa x 145 = psi	kV/mm x 25.4 = V/mil

	WEICON A	WEICON B	WEICON BR	WEICON C	WEICON F	WEICON FZ	WEICON HB 300	WEICON Ceramic BL	WEICON GL	WEICON Ceramic W	WEICON SF	WEICON ST	WEICON HP	WEICON TI	WEICON UW	WEICON MP	WEICON WR	WEICON WR2	WEICON CBC
Repair and moulding	x	x	x	x	x	x	x				x	x		x	x				x
Adhesive				x									x		x				
Wear protection								x	x	x						x			
Potting and gap filling	x					x											x	x	x

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Chemical resistance of WEICON Plastic Metals after curing*

Acetic acid dilute < 5%	+	Hydrocarbons, aliphatic (crude oil derivatives)	+
Acetone	0	Hydrocarbons, aromatic (benzene, toluene, xylene)	-
Alkalis (basic materials)	+	Hydrochloric acid < 10%	+
Amyl acetate	+	Hydrochloric acid 10 - 20%	+
Amyl alcohols	+	Hydrofluoric acid dilute	0
Anhydrous ammonia 25%	+	Hydrogen peroxide < 30% (hydrogen superoxide)	+
Barium hydroxide	+	Impregnating oils	+
Butyl acetate	+	Magnesium hydroxide	+
Butyl alcohol	+	Maleic acid (cis-butenedioic acid)	+
Calcium hydroxide (slaked lime)	+	Methanol (methyl alcohol) < 85%	0
Carbolic acid (phenol)	-	Milk of lime	+
Carbon disulphide	+	Naphthalene	-
Carbon tetrachloride (tetrachloromethane)	+	Naphthene	-
Caustic potash solution	+	Nitric acid < 5%	0
Chlorinated water	+	Oils, minerals	+
Chloroacetic acid	-	Oils, vegetable and animal	+
Chloroform (trichloromethane)	0	Oxalic acid < 25% (ethanedioic acid)	+
Chlorosulphonic acid	-	Paraffin	+
Chromic acid	+	Perchloroethylene	0
Chroming baths	+	Petrol (92 - 100 octane)	+
Creosote oil	-	Phosphoric acid < 5%	+
Cresylic acid	-	Phthalic acid, phthalic acid anhydride	+
Crude oil	+	Potassium carbonate (potash solution)	+
Crude oil and crude oil products	+	Potassium hydroxide (caustic potash) 0-20%	+
Diesel fuel oil	+	Soda lye	+
Ethanol < 85% (ethyl alcohol)	0	Sodium bicarbonate (sodium hydrogen carbonate)	+
Ethyl alcohol	0	Sodium carbonate (soda)	+
Ethyl benzole	-	Sodium chloride (cooking salt)	+
Ethyl ether	+	Sodium hydroxide < 20% (caustic soda)	0
Exhaust gases	+	Sulphur dioxide	+
Formic acid >10%	-	Sulphuric acid < 5%	0
Glycerine (trihydroxypropane)	+	Tannic acid dilute < 7%	+
Glycol	0	Tetralin (tetrahydronaphthalene)	0
Grease, oils and waxes	+	Toluene	-
Heating oil, diesel	+	Trichloroethylene	0
Humic acid	+	Turpentine substitute (white spirit)	+
Hydrobromic acid < 10%	+	Xylene	-

+ = resistant 0 = resistant for a limited time - = not resistant

* Storage of all WEICON Plastic Metals was at +20°C chemical temperature

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