

WEICON Ceramic BL



Wear protection | increased efficiency | drinking water approval according to BS 6920

WEICON Ceramic BL is filled with silicon carbide and zirconium silicate, offers high chemical and temperature resistance as well as extreme wear protection and high abrasion resistance. The epoxy resin system is especially suited for the lining of heavily stressed pump housings, as wear protection for slide bearings, slides, funnels and pipes and for the repair of castings, valves and blower fans.

A coating with WEICON Ceramic BL, which gives surfaces a very smooth finish, increases the flow speed of liquids and thus increases the efficiency of pumps, pipes, valves, etc. by 5 % to 20 %.

The product can be used in mechanical and plant engineering, in apparatus engineering and in many other areas of industry. Wear-resistant final coating for all Plastic Metal types. WEICON Ceramic BL is suitable in combination with one of the other WEICON Plastic Metal types for a system build-up as a surface finish for visual inspection.

Characteristics

Base	epoxy	
Filler	silicon carbide, zirconium silicate	
Texture	flowable	
Colour	blue	
Minimum shelf life	at room temperature	36 mon.

Processing

Processing temperature	+15 °C to +40 °C	
Component temperature	>3 °C above dew point	
Relative air humidity	< 85 %	
Mixing ratio by weight	100:8	
Mixing ratio by volume	100:15	
Viscosity of the mixture	at +25 °C	23.000 mPa·s
Density of the mixture	1,9 g/cm³	
Consumption	Layer thickness 1.0 mm	1.9 kg/m²
Max. layer thickness	per step	10 mm

Note

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Curing

Pot life	at 20 °C, 500 g batch	55 min.
Additional layer after	(35 % strength)	5 h
Working strength after	(80 % strength)	8 h
Final strength	(100 % strength)	12 h
Shrinkage		0,13 %

Mechanical properties after curing

- Measured after curing at		24 h RT + 4 h +60 °C
Tensile strength	DIN EN ISO 527-2	59 MPa
Elongation at break (tensile)	DIN EN ISO 527-2	0.9 %
E-modulus (tensile)	DIN EN ISO 527-2	7100-7300 MPa
Compressive strength	DIN EN ISO 604	116 MPa
Bending strength	DIN EN ISO 178	98 MPa
Hardness (Shore D)	DIN ISO 7619	90±3
Adhesive strength	DIN EN ISO 4624	17 MPa
Taber Test	DIN ISO 9352 (H18, 1 kg, 1000 rotations)	0,3 g / 0,17 cm³

Lap shear strength material thickn. 1,5mm DIN EN 1465

Steel 1.0338 sandblasted	12 MPa
Stainless steel V2A sandblasted	11 MPa
Aluminium sandblasted	7 MPa
Galvanized steel	4 MPa

Thermal parameters

Temperature resistance	-35 °C to +180 °C	
Tg after curing at room temperature	(DSC)	~ +58 °C
Tg after tempering (at 110°C)	108	
Heat deflection resistance	DIN EN ISO 75-2	+81 °C
Thermal conductivity	DIN EN ISO 22007-4	0,55 W/m·K
Heat capacity	DIN EN ISO 22007-4	0,83 J/(g·K)

Electrical parameters

Resistance	DIN EN 62631-3-1	1,95·10 ¹⁴ Ω·m
Magnetic	no	

Approvals / Guidelines

ISEGA	LFGB §§ 30&31EG 1935/2004	
DNV	DNV rules for classification	
ISSA Code	75.509.19/20	
IMPA Code	812937/38	
Food safety certification	ISEGA LFGB EG 1935/2004 BS 6920	

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 BL depends on the thorough preparation of the surfaces. This is the most important factor for ensuring overall success. Dust, dirt, oil, grease, rust and moisture or wetness have a negative impact on adhesive strength. Therefore, before processing WEICON Ceramic BL, 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 exceptionally soiled surfaces should additionally be treated

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by mechanical surface pre-treatment, e.g. by grinding or preferably by abrasive 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, single-pass abrasive media (aluminium oxide, corundum) should be used. Multi-use abrasive media (slag, glass, quartz) but also ice blasting will have a negative effect on the surface quality. 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 BL, 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 BL 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 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 55 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.

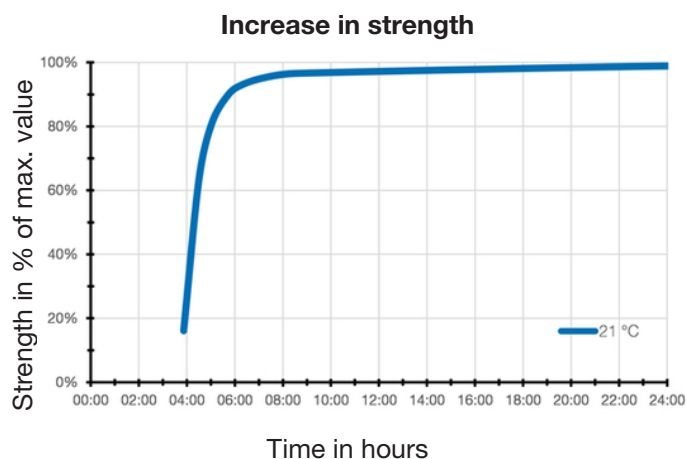
Application

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 Ceramic BL thoroughly 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. 5 hours (layer sequence time).

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.



Storage

WEICON Epoxy Resin Systems should be stored in a dry place at room temperature. Unopened containers can be stored at temperatures from +18 °C to +28 °C. Opened containers must be used up within 6 months.

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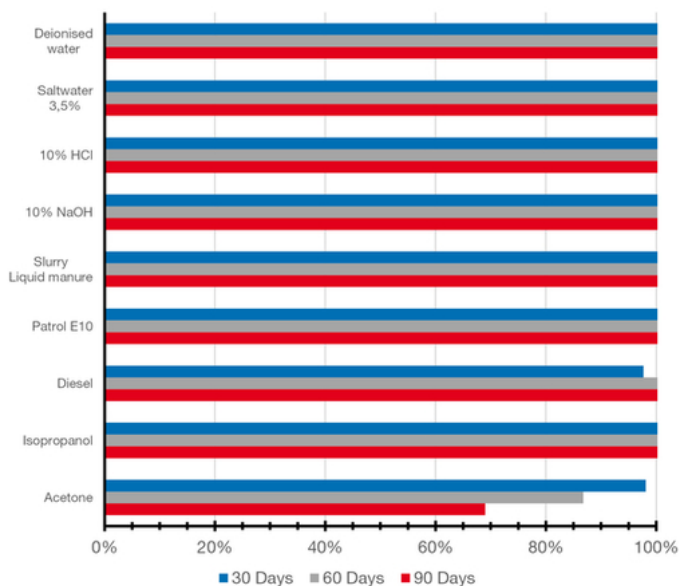
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Tensile strength after storage



Scope of delivery

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

Accessories

- 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
- 10026712 Mould Release Agent Wax P 500, 150 g
- 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
- 10002034 Empty cartridge, 1 PCE
- 10039667 Cable Scissors No. 35, 1 PCE
- 10045523 Processing Kit, 1 PCE

Recommended equipment

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

Conversion table

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$	$\text{Nm} \times 8.851 = \text{lb}\cdot\text{in}$
$\text{mm}/25.4 = \text{inch}$	$\text{Nm} \times 0.738 = \text{lb}\cdot\text{ft}$
$\mu\text{m}/25.4 = \text{mil}$	$\text{Nm} \times 141.62 = \text{oz}\cdot\text{in}$
$\text{N} \times 0.225 = \text{lb}$	$\text{mPa}\cdot\text{s} = \text{cP}$
$\text{N}/\text{mm}^2 \times 145 = \text{psi}$	$\text{N}/\text{cm} \times 0.571 = \text{lb}/\text{in}$
$\text{MPa} \times 145 = \text{psi}$	$\text{kV}/\text{mm} \times 25.4 = \text{V}/\text{mil}$

Available sizes

- 10000093 WEICON Ceramic BL, 0,5 kg, blue
- 10005233 WEICON Ceramic BL, 2 kg, blue
- 10054394 WEICON Ceramic BL, 0,2 kg, blue

	WEICON A	WEICON B	WEICON BR	WEICON C	WEICON F	WEICON F2	WEICON HB 300	WEICON HT 111	WEICON SF	WEICON ST	WEICON TI	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 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 (trihydroxipropene)	+	Tetralin (tetrahydronaphthalene)	o
Glycol	o	Toluene	-
Humic acid	+	Trichloroethylene	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.

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