

WEICON TFH



strong adhesion | high UV resistance | can be applied with spatula

WEICON TFH is a white 2-component epoxy resin system that can be applied with a spatula. It is used for fixing ceramic tiles and steel parts to a wide variety of surfaces.

The adhesive offers very strong adhesion, is impact-resistant, has a high temperature resistance and excellent chemical resistance (achieved by tempering at approx. 80-90 °C for two hours). The system contains a special light protection additive to increase UV resistance. This helps preserve the gloss for a long period, with dulling appearing much later. WEICON TFH is free of solvents. The adhesive can be used, for example, to attach ceramic tiles to steel, concrete and similar surfaces.

Characteristics

Base	Epoxy
Filler	mineral
Texture	pasty
Colour	white
Minimum shelf life	at room temperature 24 mon.

Processing

Processing temperature	+15 °C to +40 °C
Component temperature	>3 °C above dew point
Relative air humidity	< 85 %
Mixing ratio by weight	100:67
Density of the mixture	1,4 g/cm ³

Curing

Pot life	at 20 °C, 500 g batch	30 min.
Additional layer after		6,5 h
Working strength after		14 h
Final strength	+ Tempering at 80-90 °C /2h	72 h

Mechanical properties after curing

- Measured after curing at	24 h RT + 24 h 60 °C	
Tensile strength	DIN EN ISO 527-2	28 MPa
Elongation at break (tensile)	DIN EN ISO 527-2	0,9 %
E-modulus (tensile)	DIN EN ISO 527-2	3.100-3.500 MPa
Compressive strength	DIN EN ISO 604	40 MPa
Hardness (Shore D)	DIN ISO 7619	82±3
Adhesive strength	DIN EN ISO 4624	25 MPa
Lap shear strength material thickn. 1,5mm DIN EN 1465		
Steel 1.0338 sandblasted		23 MPa
Stainless steel V2A sandblasted		27 MPa
Aluminium sandblasted		12 MPa
Galvanized steel		10 MPa

Thermal parameters

Temperature resistance	-35 °C to +180 °C
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Electrical parameters

Magnetic	no
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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 TFH depends on the careful preparation of the surfaces. This is the most important factor for ensuring overall success. Dust, dirt, oil, grease and rust have a negative impact on the adhesion. Therefore, before processing WEICON TFH, the following points must be observed:

the areas to be bonded or repaired must be free of any oil, grease, dirt, rust, oxides, paint and other impurities or residues. We recommend WEICON Cleaner Spray S for cleaning and degreasing.

Smooth and very 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 2.5 – “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 abrasives (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 saline 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 TFH, a test for soluble salts should be carried out according to the Bresle method (DIN EN ISO 8502-6).

Note

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WEICON Middle East L.L.C.
United Arab Emirates
phone +971 4 880 25 05
info@weicon.ae

WEICON Czech Republic s.r.o.
Czech Republic
phone +42 (0) 417 533 013
info@weicon.cz

WEICON GmbH & Co. KG
(Headquarters) Germany
phone +49 (0) 251 9322 0
info@weicon.de

WEICON Romania SRL
Romania
phone +40 (0) 3 65 730 763
office@weicon.com

WEICON South East Asia Pte Ltd
Singapore
Phone (+65) 6710 7671
info@weicon.com.sg

WEICON Colombia S.A.S
Colombia
Phone: +57 314 793 86 06
Email: info@weicon.co

WEICON Inc.
Canada
phone +1 877 620 8889
info@weicon.ca

WEICON Ibérica S.L.
Spain
phone +34 (0) 914 7997 34
info@weicon.es

WEICON Italia S.r.l.
Italy
phone +39 (0) 010 2924 871
info@weicon.it

WEICON SA (Pty) Ltd
South Africa
phone +27 (0) 21 709 0088
info@weicon.co.za

WEICON Kimya Sanayi Tic. Ltd. Şti.
Türkiye
phone +90 (0) 212 465 33 65
info@weicon.com.tr

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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 Mould Release Agent Liquid F 1000 or, for porous surfaces, WEICON Mould Release Agent Wax P 500.

After the surface pre-treatment, WEICON TFH 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 30 minutes. The specified pot life refers to a material batch of 500 g and 20°C (68°F) material temperature. When mixing larger quantities or at higher processing temperatures, curing occurs more quickly 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. For a thin pre-coat, work WEICON TFH 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 fixing 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

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.

Scope of delivery

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

Accessories

1000147	Cleaner Spray S, 500 ml, transparent
1000347	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 short, 1 PCE
10022562	Processing Spatula long, 1 PCE
10016002	Pump Dispenser WPS 1500, 1 PCE
10039667	Cable Scissors No. 35, 1 PCE
10045523	Processing Kit, 1 PCE

Recommended equipment

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

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

10102113	WEICON TFH, 0,2 kg, white
10102134	WEICON TFH, 2 kg, white
10102121	WEICON TFH, 0,5 kg, white

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phone +42 (0) 417 533 013
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WEICON GmbH & Co. KG
(Headquarters) Germany
phone +49 (0) 251 9322 0
info@weicon.de

WEICON Romania SRL
Romania
phone +40 (0) 3 65 730 763
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WEICON South East Asia Pte Ltd
Singapore
Phone (+65) 6710 7671
info@weicon.com.sg

WEICON Colombia S.A.S
Colombia
Phone: +57 314 793 86 06
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WEICON Inc.
Canada
phone +1 877 620 8889
info@weicon.ca

WEICON Ibérica S.L.
Spain
phone +34 (0) 914 7997 34
info@weicon.es

WEICON Italia S.r.L.
Italy
phone +39 (0) 010 2924 871
info@weicon.it

WEICON SA (Pty) Ltd
South Africa
phone +27 (0) 21 709 0088
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WEICON Kimya Sanayi Tic. Ltd. Şti.
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Epoxy Resin Systems

Plastic Metal

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WEICON GmbH & Co. KG
(Headquaters) Germany
phone +49 (0) 251 9322 0
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WEICON Romania SRL
Romania
phone +40 (0) 3 65 730 763
office@weicon.com

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Chemical resistance after curing* (Excerpt)

1,4-Dioxane	-	Glycol	+
Exhaust fumes	+	Uric acid	-
Adipic acid	-	Impregnating oils	+
aliphatic hydrocarbons	+	Iodides (K, Na etc.)	-
Formic acid >10 % (methanoic acid)	-	Potassium carbonate	+
Ammonia anhydrous 25%	-	Potassium hydroxide 0-20 % (caustic potash)	+
Aniline	-	Milk of lime	+
aromatic hydrocarbons	+	Cresol	-
Barium hydroxide	+	Magnesium hydroxide	+
Benzoic acid	-	Maleic acid (cis-ethylenedicarboxylic acid)	-
Benzyl alcohol	-	Methanol (methyl alcohol) <85 %	o
Benzyl chloride	-	Methylene chloride	-
Boric acid	-	Mineral oil	+
Bromides	-	Naphthalene	+
Butadiene (1,3-)	-	Sodium bicarbonate (sodium hydrogen carbonate)	+
Butyric acid	-	Sodium carbonate (soda)	+
Butyl acetate	o	Sodium chloride (table salt)	+
Butyl alcohol	o	Nitrates	-
Calcium hydroxide (slaked lime)	+	Nitrobenzene	-
Chloroanilines	-	Oils, vegetable and animal	+
Chloroform (trichlormethane)	-	Oxalic acid <25 % (ethanedioic acid)	o
Chlorosulphuric acid (wet and dry)	-	Perchloraethylene	-
Chlorosilanes	-	Kerosene	+
Chlorinated water (swimming pool concentration)	-	Phenol	-
Chromates (K, Na, etc.)	-	Phosphoric acid <50%	+
Chromic acid	-	Phthalic acid, phthalic anhydride	-
Cyanides (K, Na etc.)	-	Nitric acid <5%	-
Cyclohexanone	-	Sulphur dioxide (wet and dry)	-
Diethyl ether	+	Carbon disulphide	-
Mineral oil and mineral oil products	+	Sulphuric acid <5%	+
Acetic acid diluted <5%	o	Soap solution	+
Ethanol <85 % (ethyl alcohol)	o	Turpentine	+
Greases, oils and waxes	+	Carbon tetrachloride (tetrachloromethane)	-
Hydrofluoric acid	-	Tetralin (tetrahydronaphthalene)	-
Tannic acid diluted <7%	o	Trichloraethylene	-
Glycerin (trihydroxipropane)	+	Hydrogen peroxide <30 % (hydrogen superoxide)	o

+ = 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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Spain
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