

Urethane 45

Shore hardness: A 45

WEICON Urethanes are 2-component polyurethanes that cure at room temperature to a rubber-like material, remaining flexible at temperatures down to -60°C (-76°F).

WEICON Urethanes adhere to a variety of materials such as metals, concrete, rubber, wood or fibre glass. In combination with the epoxy resin systems WEICON Plastic Metal, they can also be used as flexible coating.

Thanks to their low sensitivity to humidity, WEICON Urethanes can also be used for coatings in thin layers. WEICON Urethanes are characterised by their high tensile strength and tear resistance.

Characteristics

Base	polyurea	
Colour	light beige	
Minimum shelf life	at room temperature	12 mon.

Processing

Relative air humidity	<70 %	
Mixing ratio by weight	100:180	
Mixing ratio by volume	100:198	
Viscosity resin	at +25 °C	5.000 mPa·s
Viscosity hardener	at +25 °C	500 mPa·s
Viscosity of the mixture	at +25 °C	1.500 mPa·s
Density of the mixture		1.04 g/cm³

Curing

Pot life	at 20 °C	25 min.
Working strength after		12 - 20 h
Final strength	at room temperature	48* h

Mechanical properties after curing

Tensile strength	ISO 37	3,5 MPa
Elongation at break (tensile)	ISO 37	1450 %
Tear resistance	DIN 53515 / ASTM D 1002	7,5 kN/m
Hardness (Shore A)		45

Thermal parameters

Temperature resistance	-60°C to +90°C	
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Approvals / Guidelines

ISSA Code	75.509.40	
IMPA Code	812961	
MIL-Spec	complies with	MIL-M-24041

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 Urethane depends on the thorough pre-treatment of all 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 Urethane, 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. For cleaning and degreasing, we recommend WEICON Cleaner Spray S. Before application, the cleaner must flash off/evaporate without leaving any residue. Otherwise the urethane will not cure fully.

Do not use alcohol-based cleaners on absorbent surfaces.

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 1/2 - "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 (aluminium oxide, corundum) should be used. Reusable 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 Urethane, 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.

Note

The specifications and recommendations given in this technical data sheet must not be seen as guaranteed product characteristics. They are based on our laboratory tests and on practical experience. Since individual application conditions are beyond our knowledge, control and responsibility, this information is provided without any obligation. We do guarantee the continuously high quality of our products. However, own adequate laboratory and practical tests to find out if the product in question meets the requested properties are recommended. A claim cannot be derived from them. The user bears the only responsibility for non-appropriate or other than specified applications.

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

Mixing

Mix the resin and hardener thoroughly and without bubbles at 20°C (68°F) for at least four minutes. 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 adhered to, as otherwise deviating physical values will result (max. deviation +/- 2%). Only prepare a batch as large as can be processed within the pot life of 25 minutes. The specified pot life refers to a material batch of 500 g and 20°C (68°F) material temperature.

Application

During the application, we recommend an ambient temperature of 20°C at a relative air humidity below 70%. The highest adhesive strength is achieved when the parts to be processed are heated to >35°C (95°F) before application. Using a short-bristled brush for a thin pre-coat, work thoroughly into the surface in crosswise layers to achieve maximum adhesion. By means of this technique, the Urethane penetrates well into all cracks and roughness depths. Afterwards, further applications can be carried out straight away, until the desired layer thickness is reached. Pour the WEICON Urethane slowly into the mould from a very low height. Make sure that the epoxy resin is applied evenly and without air bubbles.

Curing

Final hardness is reached after 48 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 Urethane should be stored at room temperature in a dry place. Unopened containers can be stored at temperatures of +18 °C to +25 °C and a relative humidity of < 70 %. Opened containers must be used up within 3 months.

Scope of delivery

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

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
10010887	Processing Spatula, 1 PCE
10022562	Processing Spatula, 1 PCE
10001978	Stirrer Stainless Steel, 1 PCE
10010066	Contour Spatula Flexy, 1 PCE
10065455	Brush 35, long, Adhesive, 1 PCE

Recommended equipment

Angle grinder	Fabric tape
Blast machine	Brush
Heat pocket	Lint-free cloth
Hot or fan heater	

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

Available sizes

10022361 Urethane 45, 0,5 kg, light beige

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