

WEICON Casting Resin MS 1000



Liquid | unfilled | low viscosity

WEICON Casting Resin MS 1000 is a transparent and very flowable epoxy resin system with high mechanical strength. It is suitable for a wide range of applications.

MS 1000 adheres well to metal, wood, rigid foam and many plastics. It can be used for large-surface adhesive bonding or for laminating composite threaded bushes and screws. Due to its low viscosity, the epoxy resin system is also suitable for the casting of electric components.

It can be used for the production of fibre composites, in tool and mould making, in the electrical industry, in machine construction, and in many other industrial fields.

MS 1000 shows good wetting and penetration results of glass fabric and therefore is well-suited for laminating glass, aramid and carbon fibre for the production of fibre-reinforced components. It can also be easily combined with different fillers (powdery, fibrous, fabric).

Characteristics

Base	Epoxy
Filler	unfilled
Texture	liquid
Colour	transparent, low intrinsic colour
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	100:20
Mixing ratio by volume	100:21
Viscosity of the mixture	at +25 °C 1200 mPa·s
Density of the mixture	1,2 g/cm ³
Consumption	Layer thickness 1.0 mm 1,2 kg/m ²
Max. layer thickness	per step 10 mm

Curing

Pot life	at 20 °C, 500 g batch	~ 80 min.
Additional layer after	(35 % strength)	9 h
Working strength after	(80 % strength)	14 h
Final strength	(100 % strength)	24 h
Shrinkage		0,01 %

Mechanical properties after curing

- Measured after curing at		24 h RT + 4 h +60 °C
Tensile strength	DIN EN ISO 527-2	56 MPa
Elongation at break (tensile)	DIN EN ISO 527-2	2,8 %
E-modulus (tensile)	DIN EN ISO 527-2	2500-2600 MPa
Compressive strength	DIN EN ISO 604	92 MPa
Bending strength	DIN EN ISO 178	90 MPa
Hardness (Shore D)	DIN ISO 7619	81±3
Taber Test	DIN ISO 9352 (H18, 1 kg, 1000 rotations)	1,1 g / 1,0 cm ³
Lap shear strength material thicken. 1,5mm DIN EN 1465		
	Steel 1.0338 sandblasted	16 MPa
	Stainless steel V2A sandblasted	14 MPa
	Aluminium sandblasted	8 MPa
	Galvanized steel	7 MPa

Thermal parameters

Temperature resistance		-35 °C to +120 °C
Tg after curing at room temperature	(DSC)	~ +47 °C
Tg after tempering (at 70°C)	(DSC)	+62 °C
Heat deflection resistance	DIN EN ISO 75-2	+52 °C
Thermal conductivity	DIN EN ISO 22007-4	0,19 W/m·K
Heat capacity	DIN EN ISO 22007-4	1,21 J/(g·K)

Electrical parameters

Resistance	DIN EN 62631-3-1	2,31·10 ¹⁴ Ω·m
Magnetic		no

Approvals / Guidelines

ISSA Code	75.509.36
IMPA Code	812985

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.

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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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Surface Pre-Treatment

The successful application of Casting resin MS depends on the thorough pre-treatment of all 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, 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. Smooth and particularly heavily soiled surfaces should additionally be treated by mechanical surface pre-treatment, e.g. by grinding or preferably by blasting. 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, the Casting Resin MS 1000 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 80 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.

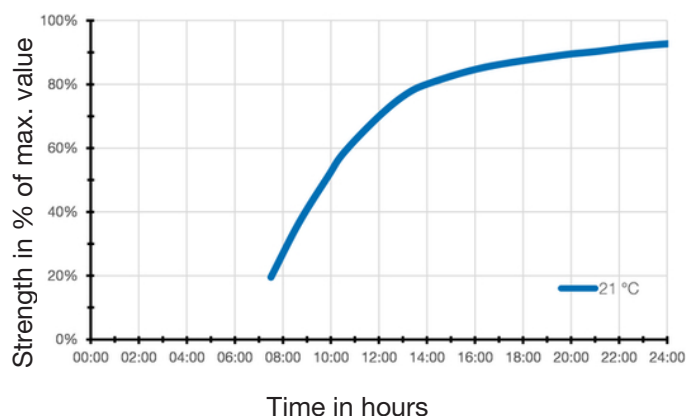
Application

Prior to the application, the mixture should be poured into a clean container. For processing, we recommend an ambient temperature of 20°C (68 °F) at less than 85% relative humidity. For a thin pre-coat, work the Casting Resin intensively into the surface in crosswise layers using the Contour Spatula Flexy or a Modler paint brush 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.

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.

Increase in strength



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 | Instructions for use | Gloves | Resin & Hardener

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(Headquarters) Germany
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Romania
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Singapore
Phone (+65) 6710 7671
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Colombia
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Canada
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Spain
phone +34 (0) 914 7997 34
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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
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info@weicon.com.tr

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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
10000913	Glass Fibre Cloth Tape, 1 PCE, white
10024676	Colour Paste Black, 250 g
10010887	Processing Spatula short, 1 PCE
10022562	Processing Spatula long, 1 PCE
10010066	Contour Spatula Flexy, 1 PCE
10059417	Brush 35 short, flat, Plastic Metal, 1 PCE
10008633	Can, 1 PCE
10001978	Stirrer Stainless Steel, 1 PCE
10016002	Pump Dispenser WPS 1500, 1 PCE
10002034	Empty cartridge, 1 PCE
10000441	Cartridge Gun, 1 PCE
10039667	Cable Scissors No. 35, 1 PCE

Recommended equipment

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

10000168	WEICON Casting Resin MS 1000, 1 kg, transparent, low intrinsic colour
10040057	WEICON Casting Resin MS 1000, 0,5 kg, transparent, low intrinsic colour
10054402	WEICON Casting Resin MS 1000, 200 g, transparent, low intrinsic colour

To the product detail page:



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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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