

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 |

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/cm³ |
| Consumption | Layer thickness 1.0 mm 1,2 kg/m² |
| 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 |
| Lap shear strength material thickn. 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

| | |
|--|--------------|
| Tg after curing at room temperature (DSC) | ~ +47 °C |
| Tg after tempering (at 120°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 |

Specific properties

| | |
|-----------|-----------|
| IMPA Code | 812985 |
| ISSA Code | 75.509.36 |

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 Casting resin MS depends on the thorough pre-treatment of all surfaces. This is the

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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. 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 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 36 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 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. Opened containers must be used up within 6 months.

Scope of delivery

Processing Spatula | Instructions for Use | Gloves

Accessories

| | |
|----------|---|
| 11202500 | Cleaner Spray S, 500 ml, transparent |
| 15200005 | Cleaner S, 5 L, colourless, transparent |
| 11207400 | Surface Cleaner, 400 ml, transparent |
| 15207005 | Surface Cleaner, 5 L, transparent |
| 10604025 | Mould Release Agent Liquid F 1000, 250 ml, white, milky |
| 10604515 | Mould Release Agent Wax P 500, 150 g |
| 10850005 | Glass Fibre Cloth Tape, 1 PCE, dark grey |
| 10519250 | Colour Paste Black Colour Paste Black, 250 g |
| 10953001 | Processing spatula, 1 PCE |
| 10953003 | Processing spatula, 1 PCE |
| 10953020 | Contour Spatula Flexy, 1 PCE |
| 10953021 | , 0 " |
| 10953064 | Can, 1 PCE |
| 10953010 | Stirrer Stainless Steel, 1 PCE |
| 15841500 | Pump Dispenser WPS 1500, 1,5 L |
| 13955001 | Empty cartridge, 1 PCE |
| 13250001 | Cartridge Gun, 1 PCE |
| 52000035 | Cable Scissors No. 35, 1 PCE |

Recommended equipment

Angle grinder
Blast machine
Heating pack, Hot air blower or fan heater
Smoothing trowel, spatula

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PE foil 0.2 mm
Fabric tape
Paint brush, foam roller
Lint-free cloths

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:

- 10520010 WEICON Casting Resin MS 1000, 1 kg, transparent, low intrinsic colour
- 10520005 WEICON Casting Resin MS 1000, 0,5 kg, transparent, low intrinsic colour
- 10520002 WEICON Casting Resin MS 1000, 200 g, transparent, low intrinsic colour

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 (trihydroxipropane) | + | Tetralin (tetrahydronaphthalene) | o |
| Glycol | o | Toluene | - |
| Humic acid | + | Hydrogen peroxide <30 % (hydrogen superoxide) | + |
| Impregnating oils | + | Trichloroethylene | o |
| 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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