Weicon Epoxy Casting Resin MS 1000 is a high quality, German-made, epoxy resin that can be used for all kinds of casting, moulding, coating and filling work. This two-part epoxy is quite liquid in nature which allows it to be poured. It is made from unfilled epoxy resin and is mainly transparent with a slight, yellow-ish, inherent colour once it's cured.

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This versatile epoxy resin can be used in several ways. Depending on the application you can make it without fillers, or add other substances and materials to change its properties. Adding fabric or fibre for reinforcement, or powders for colouring or other special purposes, are all common occurrences.

Epoxy Casting Resin will bond to most types of materials including wood, metal, epoxy sheet, fibreglass, most plastics, stone, concrete, glass and ceramics. It will also withstand many chemicals (a resistance table is included on the TDS).

This two-part epoxy has a mix ratio of 10:2 though extra space has been left in the resin container so all the activator can be added (which eliminates the need for measuring if using the whole kit at once). Once it is mixed, pot life is around 20 minutes and it will reach 50% of its final strength after 24 hours. Full cure will take about 36 hours though these figures depend on curing quantity and conditions (the listed figures were measured at 20°C).

Epoxy Casting Resin cures with very little shrinkage (0.2%) and forms a solid, hard epoxy that has very good strength characteristics. It will withstand temperatures between -35°C and +120°C and has very low thermal conductivity. Because it is an epoxy resin, MS 1000 has excellent electrical properties. Dielectric Strength is 14 kV/mm.

Applications

- Making moulded epoxy parts and components.
- Surface coating.
- Filling gaps and voids around support posts.
- Filling gaps in electrical insulation and in electrical components.
- Covering gaps.
- In all kinds of model making applications.
- Making repairs to tools and components.
- General repairs to boats and watercraft.
- General repairs and gap filling for workshops and facilities.

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Technical Details

Properties

Basis	Epoxy Resin (Unfilled)
Colour After Curing	Transparent (Slight Inherent Colour)
Mix Ratio	10:2
Density of the Mixture	1.1 g/cm^3
Pot Life at 200g of Material At 20ºC	20 Min.
Viscosity of the Mixture	1,300 MPa
Processing Temperature	+10ºC to 35ºC
Curing Temperature	+6ºC to 40ºC
Max. Layer Thickness Per Application	10mm
Mechanical Strength (50%) When Curing at 20ºC	24 Hours
Final Strength (100%) When Curing at 20ºC	36 Hours
Mean Compressive Strength at 25ºC (DIN 53281-83)	60 MPa
Mean Tensile Strength at 25ºC (DIN 53281-83)	25 MPa
Mean Flexural Strength at 25ºC (DIN 53281-83)	285 MPa
Strength E-Modul at 25ºC (DIN 53281-83)	17,000 – 18,000 MPa
Shore Hardness at 25ºC (DIN 53281-83)	65 Shore D
Shrinkage	0.2%
Thermoforming Resistance	+50ºC
Temperature Resistance	-35ºC to +120ºC
Electrical Resistance (IEC 60.093)	10^{15} Ω/cm
Dielectric Strength (IEC 60.243)	14 kV/mm
Thermal Conductivity (ISO 8894-2)	0.2 W/m·K

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Chemical Resistance of Epoxy Casting Resin MS 1000 After Curing

Acetic Acid Dilute (<5%)	+	Hydrocarbons (Aromatic)	-
Acetone	O	Hydrochloric Acid (<10%)	+
Alkalis (Basic Minerals)	+	Hydrochloric Acid (10-20%)	+
Amyl Acetate	+	Hydrofluoric Acid Dilute	O
Amyl Alcohols	+	Hydrogen Peroxide (<30%)	+
Anhydrous Ammonia (25%)	+	Impregnating Oils	+
Barium Hydroxide	+	Magnesium Hydroxide	+
Butyl Acetate	+	Maleic Acid	+
Butyl Alcohol	+	Methanol (Methyl Alcohol, <85%)	O
Calcium Hydroxide (slaked lime)	+	Milk of Lime	+
Carbolic Acid (Phenol)	-	Naphthalene	-
Carbon Disulphide	+	Naphthene	-
Carbon Tetrachloride	+	Nitric Acid (<5%)	O
Caustic Potash Solution	+	Oils, Vegetable and Animal	+
Chlorinated Water	+	Oxalic Acid (<25%)	+
Chloroacetic Acid	-	Paraffin	+
Chloroform	O	Perchloroethylene	O
Chlorosulphonic Acid	-	Petrol (92-100 Octane)	+
Chromic Acid	+	Phosphoric Acid (<5%)	+
Chroming Baths	+	Phthalic Acid	+
Creosote Oil	-	Phthalic Acid Anhydride	+
Cresylic Acid	-	Potassium Hydroxide (Caustic Potash, 0-20%)	+
Crude Oil	+		
Crude Oil Products	+	Soda Lye	+
Diesel Fuel Oil	+	Sodium Bicarbonate (Sodium Hydrogen Carbonate)	+
Ethanol < 85% (Ethyl Alcohol)	O		
Ethyl Alcohol	O	Sodium Carbonate (Soda)	+
Ethyl Benzole	-	Sodium Chloride (Cooking Salt)	+
Ethyl Ether	+	Sodium Hydroxide (Caustic Soda, <20%)	O
Exhaust Gases	+		
Formic Acid (>10%)	-	Sulphur Dioxide	+
Glycerine	+	Sulphuric Acid (<5%)	O
Glycol	O	Tannic Acid Dilute (<7%)	+
Grease, Oils and Waxes	+	Tetralin	O
Heating Oil, Diesel	+	Toulene	-
Humic Acid	+	Trichloroethylene	O
Hydrobromic Acid (<10%)	+	Turpenetine Substitute (White Spirit)	+
Hydrocarbons (Aliphatic)	+	Xylene	-

+ = Resistant O = Resistant for a Limited Time - = Not Resistant

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Preparation of the Surface

To ensure that Epoxy Casting Resin bonded to the surface you want it to, it is very important to ensure the surface is clean and dry (Cleaner S Spray, Surface Cleaner or Plastic Cleaner may be ideal). If possible, smooth surfaces should be roughened as this will increase adhesive power.

Cast parts, which have been exposed to sea water for a long time, should be treated with special care as they might contain inorganic salts. It is possible that these salts reach the surface and absorb moisture, thus starting the formation of rust (rust bubbles under the protective coating). It is therefore suggested that such parts are heated or exposed to flame after sand blasting.

If adhesion is not desired, a separating agent must be used. For smooth surfaces, Weicon Mould Release Agent (silicone free) or Weicon Silicone Spray may be suitable. For porous surfaces, Weicon Mould Release Agent Was P 500 is more suitable.

It is suggested that you begin the application of Weicon Casting Resin immediately after surface pre-treatment to avoid oxidation and instantaneous rust formation.

Processing

To ensure proper curing is achieved, it is critically important that the two parts that make up each kits of Casting Resin are properly mixed. Space has been left in the larger resin container so the entire contents of the hardener container can be added, thus ensuring a proper mix ratio. If you are using less than the full kit, it is very important that the 10:2 mix ratio (by weight) be observed.

Epoxy Casting Resin MS 1000 covers gaps, fills voids or can be poured up to a maximum of 10mm per application. The pot life given is for a material quantity of approximately 200 grams at room temperature. If larger quantities are used, the curing time will be faster due to the typical reaction heat of epoxy resins (exothermic reaction). Similarly, higher ambient temperatures shorten the cure time (as a rule of thumb, every 10ºC increase above room temperature will halve working time and cure time). Temperatures below +16ºC will extend working time and cure time considerably while below around +5ºC no reaction will occur.

Physiological properties / health and safety at work

Weicon Epoxy Casting Resin MS 1000, when properly handled and completely cured, is toxicologically harmless. When using this product, the physical, safety, technical, toxicological and ecological data and regulations in the SDS must be observed.

Storage

When stored unopened and in normal climatic conditions (20ºC) Epoxy Casting Resin MS 1000 has a minimum shelf-life of 18 months. Storage in direct sunlight should be avoided.

Available Sizes

Epoxy Casting Resin MS 1000 is available from Swift Supplies in 1kg Kits.

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