

Weicon Plastic Metal A is a versatile type of epoxy putty made from steel filled epoxy resin. This grade is incredibly versatile and can be used for all kinds of repair, maintenance and production work.

Once the two parts are mixed together, it has a pasty consistency so it can be moulded into shape. Once cured, it will form an extremely hard, abrasion resistant compound that will withstand wear, a wide range of chemicals and temperatures up to 120°C.

Cured Plastic Metal A will be dark grey in colour and can be painted over if required. It can also be machined, filed or sanded to give you a very precise finish for jobs that need it.



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This grade of Plastic Metal is used all around the world in a variety of different industries and applications (just some of which are listed below). It is certified by Germanischer Lloyd for use as a repair compound in the marine industry and is also registered with IMPA and ISSA.

Applications

- Repairing cracks on pump housings, motor casings and other metal surfaces.
- Eliminating corrosion damage and pitting on tanks, pipes and containers.
- Filling holes and repairing leaking pipes.
- Fixing broken castings.
- Making moulds, models, tools and fixtures.
- Heavy duty bonding of a wide range of materials.

Technical Details

Basis	Steel Filled Epoxy Resin	Mean Compressive Strength at 25°C (DIN 53281-83)	80 MPa
Mix Ratio (Resin / Hardener)	10:1	Mean Tensile Strength at 25°C (DIN 53281-83)	21 MPa
Density of the Mixture	2.9 g/cm ³	Mean Flexural Strength at 25°C (DIN 53281-83)	34 MPa
Pot Life at 200g of Material At 20°C	60 Min.	Mean E-Modul at 25°C (DIN 53281-83)	3,500 – 5,000 MPa
Viscosity of the Mixture	1,000,000 MPa	Shore Hardness at 25°C (DIN 53281-83)	90 Shore D
Colour After Curing	Dark grey	Shrinkage	0.015%
Maximum Layer Thickness (per application)	10mm	Thermoforming Resistance	+65°C
Mechanical Strength (50%) When Curing at 20°C	16 Hours	Temperature Resistance	-35°C to +120°C
Final Strength (100%) When Curing at 20°C	24 Hours	Thermal Conductivity (ISO 8894-2)	0.3 W/m·K
		Dielectric Strength (ASTM D 149)	1.2 kV/mm
		IMPA References	81 29 01 & 81 29 02
		ISSA References	75.509.01 & 75.509.02
		Germanischer Lloyd Certified	Yes

Important

The values listed here and the information presented should not be treated as a substitute for specific technical advice. We cannot warrant the products performance or suitability for particular applications.

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Plastic Metal A Chemical Resistance 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	+	Soda Lye	+
Crude Oil Products	+	Sodium Bicarbonate (Sodium Hydrogen Carbonate)	+
Diesel Fuel Oil	+	Sodium Carbonate (Soda)	+
Ethanol < 85% (Ethyl Alcohol)	O	Sodium Chloride (Cooking Salt)	+
Ethyl Alcohol	O	Sodium Hydroxide (Caustic Soda, <20%)	O
Ethyl Benzole	-	Sulphur Dioxide	+
Ethyl Ether	+	Sulphuric Acid (<5%)	O
Exhaust Gases	+	Tannic Acid Dilute (<7%)	+
Formic Acid (>10%)	-	Tetralin	O
Glycerine	+	Toulene	-
Glycol	O	Trichloroethylene	O
Grease, Oils and Waxes	+	Turpenetine Substitute (White Spirit)	+
Heating Oil, Diesel	+	Xylene	-
Humic Acid	+		
Hydrobromic Acid (<10%)	+		
Hydrocarbons (Aliphatic)	+		

+ = Resistant

O = Resistant for a Limited Time

- = Not Resistant

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Preparation of the Surface

To ensure a perfect bond, the surface to which the Plastic Metal will be applied must be clean, dry and degreased. Most surface contaminants (e.g. old paint residues, oil, grease, dirt, dust) can be removed with either Weicon Cleaner S or Weicon Sealant and Adhesive Remover.

If the surfaces are very smooth, the adhesion achieved by Plastic Metal can be enhanced by sand-blasting with a suitable grain size of sand or by roughening with a coarse abrasive material.

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.

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

Application

Mixing

Before adding the hardeners to the larger resin container, it is very important that you stir up the fillers in the resin thoroughly while ensuring that they do not contain bubbles. After this has been done, mix the resin and the hardener for at least 4 minutes using the spatula supplied with every Plastic Metal kit or with a mechanical mixer (at low speed, max. 500 rpm) to get a uniform mass.

Do not mix more material that you intend to use within the pot life and be sure to strictly observe the specified mixing ratio of 1:1 for Plastic Metal HB 300 (tolerance on this is a maximum of +/- 2%).

Pot Life and Processing Time

The indicated pot life refers to mixtures of 200gm prepared at 20°C. Larger quantities will cure faster due to the typical exothermic reaction associated with epoxy resins. Weicon Plastic Metals should be processed at room temperature (approximately 20°C).

Pot life and cure time will be reduced considerably at higher temperatures. The rule of thumb for this is every increase of 10°C above room temperature leads to a reduction in pot life and cure time of about 50%. At temperatures below 16°C the pot life will slow. Below about 5°C there is no reaction between the resin and the hardener.

Cure and Treatment

Weicon Plastic Metal A can be machined or demoulded after about 16 hours at room temperature. Final cure will be achieved after 24 hours.

In low temperature environments, the cure time can be accelerated via the application of heat up to a maximum of 40°C (via a heat lamp, electric blanket or hot air fan). To avoid thermal overheating and possible deformation the surface must not be warmed up with open flame.

Storage

When stored unopened and in normal climatic conditions (20°C) Weicon Plastic Metal A has a minimum shelf-life of 24 months. Storage in direct sunlight should be avoided.

Opened containers must be used within 6 months.

Available Sizes

Plastic Metal A Steel Filled Epoxy is available from Swift Supplies in 0.5kg & 2kg Kits. Each kit contains the correct proportions of resin and hardener, plastic gloves and a plastic mixing spatula.

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