Epoxy Resin Systems

Epoxy adhesives

Easy-Mix Metal



UL-TESTED

high-temperature resistant | pasty | fast-curing

WEICON Easy-Mix Metal is a 2-component epoxy resin system specifically developed for bonding metal parts. The adhesive is pasty, fast-curing and resistant to high temperatures up to +180 °C. It cures to form a viscoplastic and impact-resistant bond with high tensile and impact strength. The system is especially suitable for bonding applications where larger tolerances need to be bridged.

Easy-Mix Metal is suitable for bonding numerous materials, such as plastic or fibre composites. The epoxy resin system can be used in many areas of industry, e.g. in metal construction.

The Dispenser Easy-Mix D 50 or the Manual Dispenser are required for processing Easy-Mix products in 50 ml containers.

Characteristics

Base		Epoxy
Filler		highly filled
Texture		pasty, gap-filling
Colour		grey
Minimum shelf life	at room temperature	18 mon.

Processing

Processing temperature		+15 °C to +40 °C
Component temperature		>3°C above dew point
Cure temperature		+6 °C to +40 °C
Relative air humidity		max. 85%
Mixing ratio by volume		1:1
Viscosity of the mixture	at +20 °C	55.000 mPa·s
Density of the mixture		1,8 g/cm³
Gap bridging up to max.		4 mm

Curing

Pot life	at 20 °C, 10 g batch	4-5 min.
Handling strength	(35 % strength)	20 min.
Working strength after	(80 % strength)	40 min.
Final strength	(100 % strength)	24 h
Shrinkage		0,49 %

Mechanical properties after curing

- Measured after curing at		24 h RT + 24 h 60 °C
Tensile strength	DIN EN ISO 527-2	28 N/mm²
Elongation at break (tensile)	DIN EN ISO 527-2	0,6 %
E-modulus (tensile)	DIN EN ISO 527-2	4.100 - 4.600 MPa
Compressive strength	DIN EN ISO 604	30 MPa
Bending strength	DIN EN ISO 178	58 MPa
Hardness (Shore D)	DIN ISO 7619	83 ±3
Lap shear strength material thickn. 1,5mm DIN EN 1465		
Steel 1.0338 sandblasted		20 N/mm²
Stainless steel V2A sandblasted		20 N/mm²
Aluminium sandblasted		10 N/mm²
Galvanized steel		19 N/mm²
PVC-rigid roughened		11 N/mm²

Thermal parameters

Temperature resistance		-50 °C to +180 °C (-58°F to +356°F)
Tg after curing at room temperature	(DSC)	44,3 °C
Temperature conductivity		0,286 mm²/s
Thermal conductivity	DIN EN ISO 22007-4	0,51 W/m·K
Heat capacity	DIN EN ISO 22007-4	0,904 J/(g·K)

Electrical parameters

Resistance	DIN EN 62631-3-1	4,57·10¹² Ω·m
Dielectric strength	DIN EN 60243-1 (20°C)	17 kV/mm
Magnetic		no

Approvals / Guidelines

ISSA Code	75.530.12
IMPA Code	812952

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

Clean and dry bonding surfaces are essential for flawless adhesive bonding (e.g. cleaning and degreasing with WEICON Surface Cleaner).

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Application

WEICON Easy-Mix products can be processed straight from the double cartridge by means of the included static mixer. Dismiss the first 5 cm of the adhesive bead. The adhesive is applied to just one side.

The specified pot life refers to a material batch of 10 ml at room temperature. Larger batch quantities will result in faster curing. Higher temperatures also reduce the pot life and curing time. (General rule: every increase by +10 °C above room temperature results in a decrease of the pot life and curing time by half). Temperatures below +16 °C increase the pot life and curing time significantly. From approx. +5 °C and below, no reaction takes place.

Storage

WEICON epoxy adhesives should be stored in a dry place at room temperature. Unopened containers can be stored at temperatures from +18 °C to +25 °C. Protect from direct sunlight. Failure to observe these storage instructions will reduce the shelf life to 6 months. Epoxy resins generally tend to crystallise at temperatures below +5 °C. This effect is increased by large temperature fluctuations, e.g. during transport especially in the winter months. This has a negative impact on processing, curing and technical data, can, however, be reversed by heating the product (up to max. +50 °C, no open flame). In WEICON epoxy adhesives, crystallisation is reduced by the careful choice and combination of base resins (bisphenol A and F).

Scope of delivery

Adhesive | Helix Mixing Nozzle A

Accessories

10005237	Dispenser Easy-Mix D 50, 1 PCE
10101999	WEICON Manual Dispenser, 1 x 1:1 | 2:1
10026925	Helix Mixing Nozzle A, 1 PCE, white
10068261	Dosing Tip A Size 0,5 mm, 1 PCE

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/mm^2 x 145 = psi	N/cm x 0.571 = lb/in
MPa x 145 = psi	kV/mm x 25.4 = V/mil

Available sizes

10018047	Easy-Mix Metal, 50 ml, grey

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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