

Chester Metal Super

DESCRIPTION:

Chester Metal Super is a two-element tixotropic epoxy-metallic composite. The material contains modified epoxy resins, steel and fiber fillers. A steel-filled epoxy putty cures at room temperature and is designed for filling, rebuilding, and bonding metal surfaces.

TYPICAL APPLICATION:

- REPAIRING LEAKAGES IN PIPELINES AND TANKS.
- REPAIR OVERSIZED KEYWAYS
- SETTLING OF BRIDGE BEARING
- RESTORING HEAT EXCHANGES
- MODIFY BEARING SEATS
- CASTING DEFECTS REPAIR
- FILL CASTING VOIDS, DEFECTS
- REBUILD DAMAGED, SCORED SHAFTS
- REBUILDING DAMAGED THREAD
- REBUILDING DISTORTED FLANGES
- MATERIALS BONDING

Technical data

Cured Density	----	----	2,06[±]0,05 g/cm³	
Mix Ratio by Volume	----	----	2 : 1	
Mix Ratio by Weight	----	----	3 : 1	
Color			gray	
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	22,8 MPa	3310 psi
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	13,5 MPa	1960 psi
Tensile Shear (Brass)	ASTM 1002	ISO 4587	11,9 MPa	1725 psi
Temperature Resistance Wet	----	----	100^oC	212^oF
Temperature Resistance Dry	----	----	210^oC	410^oF
Minimal working temperature	----	----	-50^oC	-58^oF
Max. working temp. as a filler			250^oC	482^oF
Heat Distortion Temperature	----	DIN 53462	90^oC	
Working Life (68 ^o F)(20 ^o C)	----	----	35 min	
Cured Hardness	ASTM D2240	----	88^oSh D	
Compressive Strength	ASTM D695	ISO 604	146 MPa	21175 psi
Thermal conductivity coefficient	----	----	0.56 W/mK	
Flexural strength	----	ISO 178	90 MPa	13050 psi
Flexural modulus	----	----	8560 MPa	1,24x10⁶ psi
Impact strength	----	ISO 179	5.6 kJ/m²	

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DIRECTIONS FOR USE

Conditions during the application.

The product is not recommended to apply when the ambient temperature is below 5°C(41°F) and the relative humidity is above 90% or when condensation occurs on the surface to be repaired.

Surface preparation.

The surface in the part to be repaired shall be degreased chemically or by gas-jet, mechanically cleaned by blast cleaning, sanding, or with the help of the abrasive paper, grinders, pin-lift grinding wheels, etc. You should always aim at thoroughly remove all loose contamination and make the surface roughened. A correctly prepared surface shall be degreased using for ex. Chester Fast Cleaner. F-7 or Chester Ultra Fast Degreaser F-6.

Mixing and application of the composition.

Use two different spatulas to take the Base and the Reactor. Mix both elements on the flat smooth surface or mix them in original packages until obtaining a uniform color. Once the mix was prepared it should be directly applied, because curing starts immediately and every late could weaken the adhesion. Necessary layer should be placed single, carefully rubbing it into the base. In case there is necessary second layer, first shouldn't be fully cured, otherwise there should be made rough surface. In the case of repairs of cracks, it is recommended to additionally reinforce the composite with a steel mesh or fiberglass net.

Efficiency

1kg. after mixing has volume 0,49 dm³.

Post curing

Post curing in temperature 80-110°C (176-230°F) in minimum 2h, after initial cure considerably improves mechanical properties, heat and chemical resistance.

Optimal cure e.g: tensile shear research, obtained after 7 days in 20°C (68°F) and post-cure by heating to 110°C (230°F) for a period 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature °C (°F)	Time for application [min]	Time for treatment [h]
10 (50)	45	8
20 (68)	35	5
30 (86)	10	2.5

It should be remembered that the rate of the reaction significantly depends, apart from the ambient temperature, on the quantity of the used material (the bigger mass of the mixed material, the reaction rate increases). The above presented times refer to the mass of 0.25 kg of the composite.

CHEMICAL RESISTANCE

samples were subjected to thermal stabilization. If not stated otherwise tests were carried at the temperature of 20°C(68°F)

- 1 – Prolonged immersion
- 2 – Short-term immersion
- 3 – Not recommended

Solvent	Chemical resistance
Petrol	1
Diesel fuel	1
Brake fluid	1
Motor oil	1
Petroleum	1
Nitric acid 10%	1
Nitrous acid 10%	1
Acetic acid 5%	2
Amines	1
Hydrochloric acid 10%	1
Ammonia 20%	1
Water 100 °C(212 °F)	1
Sea water	1
Ozone (dry)	1
Chlorine	1
Acetone	3
Methylene Chloride	3

Full table of chemical resistance is on the website
<http://www.chester.com.pl/GBA/multimedia/2/51/>

OTHER INFORMATION

Storage

The product should be stored in original packaging at temperature between +0°C(32 °F) to +30°C(86 °F).

