

Chester Metal Special

DESCRIPTION:

Chester Metal Special is a multipurpose two-element thixotropic epoxy-metallic composite. The material contains modified epoxy-novolac resins, metallic and fiber fillers. It is designed to complement, rebuild and bond metal surfaces, especially at elevated temperatures. Cures at room temperature.

TYPICAL APPLICATION:

- STOPPING LEAKS IN PIPELINES AND TANKS.
- REPAIR OF DAMAGED SPLINEWAYS
- RESTORATION OF HEAT EXCHANGES
- REBUILDING OF BEARING SEATS
- CASTING DEFECTS REPAIR
- REPAIR OF CRACKS IN THE BODIES
- REBUILDING OF SHAFT NECKS
- REBUILDING OF DAMAGED THREADS
- REPAIR OF DAMAGED FLANGES
- EMBEDDING ANCHOR BOLTS
- BONDING, PASTING, SEALING

Technical data

Cured Density	-----	-----	1,99 ±0,05 g/cm³	
Mix Ratio by Volume	-----	-----	3 : 1	
Mix Ratio by Weight	-----	-----	5,5 : 1	
Color	gray			
Tensile Shear (Steel)	ASTM 1002	ISO 4587	20,1 MPa	2915 psi
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	13,0 MPa	1885 psi
Tensile Shear (Brass)	ASTM 1002	ISO 4587	11,5 MPa	1670 psi
Temperature Resistance Wet	-----	-----	110°C	230°F
Temperature Resistance Dry	-----	-----	220°C	428°F
Minimal working temperature	-----	-----	-50°C	-58°F
Max. working temp. as a filler			250°C	482°F
Working Life (68°F)(20°C)	-----	-----	55 min	
Heat Distortion Temperature	ASTM D648	ISO 75-1	103 °C	217 °F
Hardness	ASTM D2240	-----	88 Sh D	
Compressive Strength	ASTM D695	ISO 604	145 MPa	21030 psi
Thermal conductivity coefficient	-----	-----	0,56 W/mK	
Flexural strength	-----	ISO 178	90 MPa	13050 psi
Flexural modulus	-----	-----	8560 MPa	1,24x10 ⁶
Impact strength	-----	ISO 179-1/1fU	6,2 kJ/m²	

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DIRECTIONS FOR USE

Conditions during the application.

The product cannot be used at a temperature lower than 10 °C (50°F) or a relative air humidity higher than 90% and in conditions in which moisture condensation occurs on the surface to be repaired.

Surface preparation.

The surface of the part to be repaired should be degreased chemically or with a gas burner and mechanically cleaned - by shot blasting, sandblasting or with the use of angle grinders, pin grinding wheels, sandpaper, etc.

Always strive to thoroughly remove surface contamination and make the surface well roughened. A properly prepared surface should be degreased using e.g. Chester Fast Cleaner F-7 or 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. Efforts should be made to apply immediately after preparing the mixture, because the curing reaction starts immediately and any delay reduces 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 0,5 dm³.

Post curing

Post curing at a temperature 80-120°C (176-248°F) for minimum 2h, after initial cure considerably improves mechanical properties, heat and chemical resistance. Optimal curing process: 7 days at 20°C (68°F) and post-curing at 120°C (248°F) for 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature °C (°F)	Working life [min]	Time for machining [h]
10 (50)	70	20
20 (68)	55	9

30 (86)	40	6
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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

The samples were subjected to optimal curing process. Unless otherwise stated, the tests were carried out at 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

OTHER INFORMATION

Storage

The product should be stored in original packaging at temperature between +5°C(41 °F) to +30°C(86 °F).