

Chester Metal Ceramic T

DESCRIPTION:

Chester Metal Ceramic T is a two-component epoxy-metallic thixotropic composite. Material contains modified epoxy resins, ceramic, silicon-metallic and fiber fillers. Intended for the rebuilding of metal parts damaged by erosion, cavitation, corrosion and bonding metal surfaces. Cures at room temperature.

TYPICAL APPLICATION:

- REBUILDING OF WORN IMPELLERS AND PUMP CASINGS
- REPAIR OF HEAT EXCHANGER BOTTOMS
- RESURFACE OF VALVES AND GATE VALVES
- FAN REPAIR
- KORT NOZZLES REPAIR
- REGENERATION OF BOW THRUSTERS
- REBUILDING OF ELBOW CONNECTIONS
- T-CONNECTIONS REBUILDING
- FLANGE REGENERATION

Technical data

Cured Density	----	----	1,99 0,05 g/cm³	
Mix Ratio by Volume	----	----	2 : 1	
Mix Ratio by Weight	----	----	2,9 : 1	
Color			gray	
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	19,6 MPa	2840 psi
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	12,5 MPa	1815 psi
Tensile Shear (Brass)	ASTM 1002	ISO 4587	11,4 MPa	1655 psi
Temperature Resistance Wet	----	----	100°C	212°F
Temperature Resistance Dry	----	----	210°C	410°F
Minimal working temperature	----	----	-50°C	-58 °F
Heat Distortion Temperature	ASTM D648	ISO 75-1	85 °C	
Working Life (68°F)(20°C)	----	----	35 min	
Pull off adhesion (grit blasted steel)	ASTM D4541	ISO 4624	Min. 22,0 MPa	Min.3190 psi
Hardness	ASTM D2240	ISO R868	88 Sh D	
Compressive Strength	ASTM D695	ISO 604	120 MPa	17400 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 179-1/1fU	5,2 kJ/m²	

DIRECTIONS FOR USE

Conditions during the application.

The product cannot be used at a temperature lower than 5 ° C (41°F) or a relative air humidity higher than 90% and in conditions in which moisture condensation occurs on the surface to be repaired.

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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 (do not mix them in their 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 fiberglass net.

Efficiency

1kg. after mixing has volume 0,50 dm³.

Post curing

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

Optimal curing process: 7 days in 20°C (68°F) and post-curing at 110°C (230°F) for 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature [°C] (°F)	Working life [min]
5 (41)	60
10 (50)	45
20 (68)	35
30 (86)	10

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.

Ambient temperature [°C] (°F)	Time to obtain full mechanical strength [days]*
5 (41)	5
10 (50)	2,5
20 (68)	1
30 (86)	0,8

*for layer thickness min. 5mm

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
Antifreeze	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 a temperature between +0°C(32 °F) to +30°C(86 °F).