

Chester Metal Ceramic FSL

DESCRIPTION:

Chester Metal Ceramic FSL is a two-element liquid epoxy-ceramic composite **with extended working life**. Contains modified epoxy resins, ceramic, silicon-metallic and fiber fillers. Coating systems for protecting metals from the effects of erosion, cavitations, corrosion and bonding metal surfaces. The ceramic-filled epoxy coating 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
- REPAIR OF CONDENSERS
- PROTECTION OF PIPES AND TANKS
- REPAIR OF SHAFTS AND SHIP PROPELLERS
- FLANGE RESURFACING
- BONDING AND PASTING
- WELDS SEALING
- PROTECTION OF SCREW CONVEYORS AND PRESSES

Technical data

Cured Density	-----	-----	1,85 ± 0,05 g/cm³	
Mix Ratio by Volume	-----	-----	whole pack	
Mix Ratio by Weight	-----	-----	9 : 1	
Color	gray and blue			
Tensile Shear (Stainless Steel)	ASTM 1002	ISO 4587	22,0 MPa	3190 psi
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	23,5 MPa	3410 psi
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	14,0 MPa	2030 psi
Tensile Shear (Brass)	ASTM 1002	ISO 4587	15,1 MPa	2190 psi
Temperature Resistance Wet	-----	-----	100°C	212°F
Temperature Resistance Dry	-----	-----	200°C	392°F
Minimal Working Temperature	-----	-----	-50°C	-58°F
Heat Deflection Temperature	ASTM D648	ISO 75-1	74 °C	165 °F
Working Life (20°C) (68°F)	-----	-----	60 min	
Hardness	ASTM D2240	ISO R868	87 Sh D	
Compressive Strength	ASTM D695	ISO 604	120 MPa	17405 psi
Thermal conductivity coefficient	-----	-----	0,56 W/mK	
Flexural strength	-----	ISO 178	110 MPa	15950 psi
Abrasion resistance	-----	ISO 7784-2;disk CS17;loading 1kg	11 mm³	
Impact strength	-----	ISO 179-1/1fU	5,6 kJ/m²	

Chester Metal Ceramic FSL

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.

Surface preparation.

From the surface to be protected you need to delete all kinds of impurities, grease, oil, loose corrosion products, old paint coatings. For pre-cleaning is recommended to use the product Cleanrex, Cleanrex II, Fast Cleaner F-7. 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. and then if necessary degrease using the e.g. Chester Fast Cleaner F-7 or Ultra Fast Degreaser F-6. Always strive to thoroughly remove surface contamination and make the surface well roughened.

Mixing and application of the composition.

The entire contents of the container labeled **Reactor** pour into a container labeled **Base** and mix both components 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.

Two coats of 0,5–1,2 mm (0.02"– 0.05") thickness are recommended for applying. This material is found as two colors: grey and blue to make the correct application easier.

Whereas the second coat of the material applying the first one can not to be fully cured. Recommended application with a brush or spatula. Application should be carried out at temperatures above 5°C.

Coverage rate

Using 1kg of the product you can obtain 0,64 m² coat of 0,85 mm (0.03") thickness. To cover a surface of 1m² of 0,85mm (0.03") thickness - you need 1,57 kg of the product. Values given above are theoretical ones. In practice because of various roughness of the surfaces, decrements, irregularity – efficiency of the product may differ by +/- 15%

Post curing

Post curing at a temperature of 80-100°C (176-212°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 80°C (176°F) for 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE

Ambient temperature [°C] (°F)	Working life [min]
5 (41)	180
10 (50)	110
20 (68)	60
30 (86)	25

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
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

Storage

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