chester molecular®

Technical Data Sheet

March 2021

Chester Ceramic FSC

DESCRIPTION:

Chester Ceramic FSC is a two-component, flowable epoxy-ceramic composite. Contains modified novolak resins and abrasion-resistant silicon carbide fillers. Coating system for the protection, repair or modification of surfaces exposed to abrasion and erosion at elevated temperatures. Cures at room temperature.

TYPICAL APPLICATION:

- **PROTECTION OF CHUTES**
- **PROTECTION OF CYCLONES**
- **PROTECTION OF PIPES AND ELBOWS**
- **PROTECTION OF CENTRIFUGAL SEPARATORS**
- **PROTECTION OF AGITATORS**
- **PROTECTION OF SCREW CONVEYORS**
- **PROTECTION OF PUMPS**
- **REPAIR OF BOTTOMS OF HEAT EXCHANGERS**

Technical data				
Cured Density	-----	-----	**1,33 ±0,05 g/cm^3**	
Mix Ratio by Volume	-----	-----	**whole pack**	
Mix Ratio by Weight	-----	-----	**10 : 1**	
Color			**gray**	
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	**17,7 MPa**	**2565 psi**
Temperature Resistance Wet	-----	-----	**120^{O}C**	**248 ^{O}F**
Temperature Resistance Dry	-----	-----	**150^{O}C**	**302^{O}F**
Minimal Working Temperature	-----	-----	**-50^{O}C**	**-58 ^{O}F**
Working Life (20^{O}C) (68^{O}F)	-----	-----	**60 min**	
Cured Hardness	ASTM D2240	ISO R868	**87^O Sh D**	
Impact strength	-----	ISO 179	**6,0 kJ/m^2**	
Time to apply second layer			**2-6h**	

DIRECTIONS FOR USE

Conditions during the application.

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

Preparation of metal surfaces

From the surface to be protect 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.

Preparation of concrete surfaces

The concrete surface should be dry, dust removed and cleaned from small concrete parts. New concrete should be cured for at least 28 days and cleaned from “cement wash”. Slight surface moisture, is acceptable.

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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.

When exposed to high abrasive wear, it is recommended to apply 2 layers of material, 0,6-0,8 mm in total. When very high compressive stresses occur, a minimum layer thickness of 2 mm is recommended. When applying the second layer, the first cannot be completely cured.

Applications should be carried out at a temperature of 10 - 30°C

Coverage rate

Using 1kg of the product you can obtain 0,75 m^2 coat of 1mm thickens. To cover a surface of 1m^2 of 1mm thickness - you need 1,34 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

The coating obtains full resistance after 7 days at 20 °C(68°F) or after 18h at 20 °C(68°F) and post curing at 80 °C (176°F) for 4h.

If the material will work at elevated temperatures (above 40°C), it should be cured as follows: min. 24h at 20°C(68°F) or16h at 40°C(104°F), then gradually increase the temperature (20°C (68°F)/h) to the operating temperature using an inert medium, **or** post-cure the coating at a temperature of 100-110°C(212° - 230° F) for 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE

Ambient temperature [°C] (°F)	Working life [min]
10 (50)	80
20 (68)	60
30 (86)	50

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
Hydrochloric acid 10%	1
Ammonia 20%	1
Water 120°C	1
Sea water	1
Sodium hydroxide 40%	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 +5°C (41 °F) to +30°C (86 °F).

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