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Technical Data Sheet

November 2021

Chester Metal Ceramic FHT

DESCRIPTION:

Chester Metal Ceramic FHT is a two-component, flowable epoxy-ceramic composite. The material contains modified epoxy-novolac resins, ceramic, silicon-metallic and fibrous fillers. It is intendent to protect metal surfaces against erosion, cavitation and corrosion working at high temperatures and bonding metal surfaces. Pre-cures at room temperature

TYPICAL APPLICATION:

- **MAKING COATINGS RESISTANT TO EROSION AND CAVITATION AT ELEVATED TEMPERATURES**
- **RESURFACE OF WORN-OUT AND PROTECTION OF NEW IMPELLERS AND PUMP CASINGS**
- **REPAIR OF BOTTOMS OF HEAT EXCHANGERS**
- **RESURFACE OF VALVES AND GATE VALVES**
- **PROTECTION OF PIPES**
- **PROTECTION OF AUTOCLAVES**
- **REGENERATION OF FLANGES**
- **PROTECTON OF EVAPORTATORS AND CONDENSERS**

Technical Data

Density	-----	-----	**1,51±0,05 g/cm^3**	
Mix Ratio by Volume	-----	-----	**whole pack**	
Mix Ratio by Weight	-----	-----	**9 : 1**	
Color			**gray**	
Tensile Shear (Stainless Steel)	ASTM 1002	ISO 4587	**21 MPa**	**3050 psi**
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	**22,6 MPa**	**3280 psi**
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	**13,6 MPa**	**1970 psi**
Tensile Shear (Brass)	ASTM 1002	ISO 4587	**16,3 MPa**	**2365 psi**
Temperature Resistance Wet	-----	-----	**120^{O}C**	**248^{O}F**
Temperature Resistance Dry	-----	-----	**220^{O}C)**	**482^{O}F**
Minimal working temperature	-----	-----	**-50^{O}C**	**-58^{O}F**
Heat Distortion Temperature	ASTM D648	ISO 75	**125^{O}C**	**169^{O}F**
Working Life (20^{O}C) (68^{O}F)	-----	-----	**80 min**	
Hardness	ASTM D2240	-----	**87 Sh D**	
Compressive Strength	ASTM D695	-----	**1223 kg/cm^2**	**17404 psi**
	-----	ISO 604	**120 MPa**	**17404 psi**
Thermal conductivity coefficient	-----	-----	**0,3 W/mK**	
Flexural strength	-----	ISO 178	**105 MPa**	**15229 psi**
Impact strength	-----	ISO 179	**5,8 kJ/m^2**	

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DIRECTIONS FOR USE

Conditions during the application.

The product is not recommended to apply when the ambient temperature is below 15°C(59°F) and the relative humidity is above 90% or when condensation occurs on the surface to be repaired.

Surface preparation.

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 WZ-2 or Cleanrex RM. 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 Multicleaner F-8. 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 consistency. Efforts should be made to apply immediately after preparing the mixture, because the curing reaction starts immediately and any delay reduces the adhesion.

It is recommended to apply 1 or 2 layers of the material, with a total thickness of at least 0,8 mm for coatings operating at 100 - 120 ° C (212 – 248°F) and 0,6 mm for coatings operating at temperatures below 100 ° C (212°F). When applying the second layer, the first layer must not be fully cured. . The recommended form of application is applying with a brush or spatula. Applications should be carried out at temperatures above 15°C(59°F)

Coverage rate

Using 1kg of the product you can obtain 0,83m^2 coat of 0,8mm (0.03") thickness. To cover a surface of 1m^2 of 0,8mm (0.03") thickness - you need 1,21kg 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%

COURSE OF CURING

Minimal application temperature is 15°C(59 °F)

Maximal working life after mixing:

20°C(68°F)	80 min
30°C (86°F)	60 min
40°C (104 °F)	40 min

Maximal time for recoat:

20°C(68°F)	4,5 hours
30°C(86°F)	3,5 hours
40°C(104 °F)	1,25 hours

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.

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 (water), **or** post- cure the coating at a temperature of 110-120°C (230° -248° F) for 4 hours.

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%	1
Amines	1
Hydrochloric acid 10%	1
Ammonia 20%	1
Water 120°C(248°F)	1
Sea water	1
Ozone (dry)	1
Chlorine	1
Acetone	3
Methylene Chloride	3

 Chester Molecular Research and Development Department, 05-092 Łomianki, str. Krzywa 20B, Poland, phone +48 22 751 28 06, www.chester.com.pl

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).