chester molecular®

Technical Data Sheet

April 2016

Chester Metal Ceramic T

DESCRIPTION:

Chester Metal Ceramic T is a two component tixotropic epoxy-ceramic composite. Contains modified epoxy resins, ceramic, steel and fiber fillers. The material is designed for rebuilding metals damaged by erosion, cavitations, corrosion and bonding metal surfaces. The ceramic-filled epoxy putty cures at room temperature.

TYPICAL APPLICATION:

- **CENTRIFUGAL AND TURBINE PUMPS**
- **HEAT EXCHANGERS, WATER BOX ENDS, DIVISION BARS AND TUBE SHEETS**
- **BUTTERFLY AND GATE VALVES**
- **PROPELLERS**
- **KORT NOZZLES**
- **BOW THRUSTERS**
- **PIPE ELBOWS**
- **T-PIECES**
- **PIPES**
- **TANKS**
- **KEYWAYS**
- **FLANGE FACES**
- **CASINGS**

Technical data				
Cured Density	-----	-----	**1,99 0,05 g/cm^3**	
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^{O}C**	**212^{O}F**
Temperature Resistance Dry	-----	-----	**210^{O}C**	**410^{O}F**
Minimal working temperature	-----	-----	**-50^{O}C**	**-58 ^{O}F**
Heat Distortion Temperature	-------	DIN 53462	**88 ^{O}C**	
Working Life (68^{O}F)(20^{O}C)	-----	-----	**35 min**	
Cured Hardness	ASTM D2240	-----	**88^O Sh D**	
Compressive Strength	ASTM D695	ISO 604	**146 MPa**	**21175 psi**
Thermal conductivity coefficient	-----	-----	**0.56 W/mK**	
Flexural strength	-----	ISO 178	**90 MPa**	**13050 psi**
Flexural modulus	-----	-----	**8560 MPa**	**1,24x10^6 psi**
Impact strength	-----	ISO 179	**5.4 kJ/m^2**	

DIRECTIONS FOR USE

Conditions during the application.

The product is not recommended to apply when the ambient temperature is below 5^{o}C(41^{o}F) and the relative humidity is above 90% or when condensation occurs on the surface to be repaired.

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DIRECTIONS FOR USE

Surface preparation.

The surface in the part to be repaired shall be mechanically cleaned by means of blast cleaning, sanding, or with the help of the abrasive paper, grinders, pin-lift grinding wheels, etc. You should always aim at thoroughly remove all loose contamination and make the surface roughened. A correctly prepared surface shall be degreased using for ex. Chester Fast Cleaner. F-7 or Chester 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.

Once the mix was prepared it should be directly applied, because curing starts **immediately** and every late could weaken 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 $dm^{3.}$

Post curing

Curing in temperature 80-110 ^{o}C (176-230 ^{o}F)in minimum 2h, after initial cure considerably improves mechanical properties, heat and chemical resistance. optimal thermal stabilization is 7 days in 20 ^{o}C and heating for 4 hours in 110 ^{o}C.(230 ^{o}F)

CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature [^{o}C] (^{o}F)	Time for application [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.

CHEMICAL RESISTANCE

samples were subjected to thermal stabilization. If not stated otherwise tests were carried at the temperature of 20^{o}C(68^{o}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 ^{o}C(212^{o}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^{o}C(32 ^{o}F) to +30^{o}C(86 ^{o}F).

ISO 9001:2000