METALCLAD®
CeramAlloy® CP+

Repairs deep erosion/ corrosion damage

NUCLEAR
D.B.A. Tested
ASTM 3911-89

- Trowelable
- Requires No Heat
- Unlimited Shelf Life
- 100% Solids
- Safe & Simple To Use

METALCLAD® CeramAlloy® CP+ **is the best material to use in the nuclear power industry when making repairs to areas deeply damaged by erosion/corrosion environments on all types of fluid flow components.**

METALCLAD® CeramAlloy® CP+ is a two component, 100% solids, high-performance polymer composite specifically formulated to effectively repair and rebuild all types of fluid flow equipment.

METALCLAD® CeramAlloy® CP+ is a paste when mixed, so it is easily applied. When cured, however, ***CeramAlloy® CP+*** becomes a metal-hard, ceramic-like compound.

Heat Exchanger Tube Sheets & Water Boxes, Pumps, Valves & Pipework, Housings & Tanks, Cooling Towers, etc.

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Technical Data

Volume capacity per kg.	30 in^3 / 492 cc
Mixed density	0.073 lbs per in^3 / 2.03 gm per cc
Coverage rate per kg. @ 0.25 in / 6 mm	120 in^2 / 0.077 m^2
Shelf life	Indefinite
Volume solids	100%

Mixing ratio	Base	Activator
By volume	2	1
By weight	3.5	1

Working Life & Cure Times

Ambient Temperature		Working Life	Machining/ Light Load	Full Mechanical	Chemical Immersion
41°F	5°C	4 hrs	1 day	4 days	8 days
59°F	15°C	2 hrs	12 hrs	2 days	4 days
77°F	25°C	1 hr	6 hrs	1 day	3 days
86°F	30°C	40 min	4 hrs	20 hrs	2 days

Physical Properties

	Typical Values		Test Method
Compressive strength	14,000 psi	980 kg/cm^2	ASTM D-695
Flexural strength	15,500 psi	1085 kg/cm^2	ASTM D-790
Izod impact strength	1.3 ft lbs/in	0.69 j/cm	ASTM D-256
Hardness Shore D	82		ASTM D-2240
Tensile Shear Adhesion			
Steel	2900 psi	203 kg/cm^2	ASTM D-1002
Aluminum	2750 psi	193 kg/cm^2	ASTM D-1002
Copper	2400 psi	168 kg/cm^2	ASTM D-1002
Stainless steel	3300 psi	231 kg/cm^2	ASTM D-1002
Surface resistivity	1 x 10^{15} ohms		ASTM D-257
Volume resistivity	1 x 10^{15} ohm/cm		ASTM D-257
Dielectric constant	7.5		ASTM D-150
Dielectric strength	500 volts / mil		ASTM D-115
Breakdown voltage	18.6 Kv		ASTM D-115

Chemical Resistance

Acetic acid (0-10%)	EX	Methyl alcohol	G
Acetic acid (10-20%)	G	Methyl ethyl ketone	G
Acetone	G	Nitric acid (0-10%)	EX
Aviation fuel	EX	Nitric acid (10-20%)	G
Butyl alcohol	EX	Phosphoric acid (0-5%)	EX
Calcium chloride	EX	Phosphoric acid (5-10%)	G
Crude oil	EX	Potassium chloride	EX
Diesel fuel	EX	Propyl alcohol	EX
Ethyl alcohol	G	Sodium chloride	EX
Gasoline	EX	Sodium hydroxide	EX
Heptane	EX	Sulfuric acid (0-10%)	EX
Hydrochloric acid (0-10%)	EX	Sulfuric acid (10-20%)	G
Hydrochloric acid (10-20%)	G	Toluene	G
Kerosene	EX	Xylene	EX

EX - Suitable for most applications including immersion.
G - Suitable for intermittent contact, splashes, etc.

Printed in the USA
November, 2015

Using CeramAlloy® CP+

Surface Preparation - METALCLAD® CeramAlloy® CP+ should only be applied to clean, dry and well roughened surfaces.

1. Remove all loose material and surface contamination and clean with a suitable solvent which leaves no residue on the surface after evaporation such as acetone, MEK, isopropyl alcohol, etc.
2. Clean / roughen surface by abrasive blasting.
3. If necessary, apply moderate heat and/or allow the component(s) to "leach" to remove ingrained contaminants.
4. Thoroughly roughen surfaces by abrasive blasting to achieve a "white metal" degree of cleanliness and an anchor pattern of 3 mils

Note: In situations where adhesion is not desired, such as when making molds and patterns or to ease future disassembly, apply a suitable release agent (mold release compound, paste wax, etc.) to the appropriate surfaces.

Mixing & Application - For your convenience, the METALCLAD® CeramAlloy® CP+ Base and Activator have been supplied in precisely measured quantities to simplify mixing of full units. Should a small amount of material be required, measure out 2 parts Base and 1 part Activator by volume (2:1, v/v) on a clean mixing surface. Keep Base and Activator separated until ready to mix and apply.

Using a spatula, putty knife or other appropriate tool, mix thoroughly until all streaks disappear, resulting in a uniform color and consistency. Spread material out in a thin layer over the mixing surface to force out any trapped air. This procedure will also maximize working time.

Some deeply eroded areas, e.g. cut-waters, impeller leading edges, diffuser vanes, etc. may require the use of reinforcement tape or other suitable means to bridge the damaged area(s) followed by the application of additional material.

Health & Safety - Every effort is made to insure that ENECON® products are as simple and safe to use as possible. Normal industry standards and practices for housekeeping, cleanliness and personal protection should be observed.Please refer to the detailed SAFETY DATA SHEETS (SDS) supplied with the material (also available on request) for more information.

Cleaning of Equipment - Wipe excess material from tools immediately. Use acetone, MEK, isopropyl alcohol or similar solvent as needed.

Technical Support - The ENECON® engineering team is always available to provide technical support and assistance. For guidance on difficult application procedures or for answers to simple questions, call your local ENECON® Fluid Flow Systems Specialist or the ENECON® Engineering Center.

All information contained herein is based on long term testing in our laboratories as well as practical field experience and is believed to be reliable and accurate. No condition or warranty is given covering the results from use of our products in any particular case, whether the purpose is disclosed or not, and we cannot accept liability if the desired results are not obtained.

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