

# METALCLAD®

# CeramAlloy® CL+

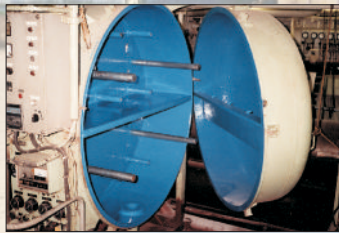
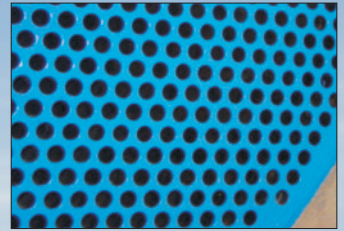
## Outstanding erosion & resistance!

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

- Apply by Brush, Roller or Flexible Applicator
- Requires No Heat
- Unlimited Shelf Life
- 100% Solids
- Safe & Simple To Use

### METALCLAD®

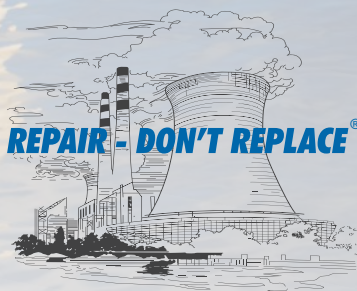
**CeramAlloy® CL+** is a High Performance Polymer Composite for resurfacing and protecting all types of fluid flow components from aggressive erosion and corrosion damage specifically designed for the nuclear power industry .



**METALCLAD® CeramAlloy® CL+** is a 100% solids, two component, liquid high-performance polymer composite used for repairing, resurfacing and coating components to provide outstanding fluid flow erosion and corrosion resistance.

When mixed, **METALCLAD® CeramAlloy® CL+** is a viscous liquid. CL+ then cures to a hard, ceramic-like material with an extremely smooth surface finish.

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



**ENECON® Corporation**  
The Fluid Flow  
Systems Specialists.

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## Technical Data

Volume capacity per kg.	25 in <sup>3</sup> / 410 cc	
Mixed density	0.088 lbs per in <sup>3</sup> / 2.44 gm per cc	
Coverage rate per kg. @ 12 - 15 mils.	10-11 ft <sup>2</sup> / 1 m <sup>2</sup>	
Shelf life	Indefinite	
Volume solids	100%	
Mixing ratio	Base	Activator
By volume	2.6	1
By weight	7.5	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	16,000 psi	1120 kg/cm <sup>2</sup>	ASTM D-695
Flexural strength	15,500 psi	1085 kg/cm <sup>2</sup>	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	2400 psi	168 kg/cm <sup>2</sup>	ASTM D-1002
Aluminum	2500 psi	175 kg/cm <sup>2</sup>	ASTM D-1002
Copper	1950 psi	137 kg/cm <sup>2</sup>	ASTM D-1002
Stainless steel	2700 psi	189 kg/cm <sup>2</sup>	ASTM D-1002
Surface resistivity	1 x 10 <sup>15</sup> ohms		ASTM D-257
Volume resistivity	1 x 10 <sup>15</sup> ohm/cm		ASTM D-257
Dielectric constant	7.5		ASTM D-150
Dielectric strength	652 volts / mil		ASTM D-115
Breakdown voltage	6.1 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.

# Using CeramAlloy® CL+

**Surface Preparation** - METALCLAD® CeramAlloy® CL+ 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® CL+ Base and Activator have been supplied in precisely measured quantities. Simply pour the entire contents of the Activator container into the Base container and, using a spatula, putty knife or other appropriate tool, mix thoroughly until the METALCLAD® CeramAlloy® CL+ reaches a uniform, streak-free color.

Apply the mixed material to the prepared surface using a stiff-bristled brush, flexible applicator or roller. As a guide, an even thickness of approximately 12-15 mils per coat should be obtained. A minimum two coat application is required.

Overcoating should ideally be performed when the previously applied coat is just surface tacky; and certainly within 8 hours of the previous coat.

**Health & Safety** - Every effort is made to ensure 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 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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