

## CCS™ COATING

### CONCENTRATED SULFURIC ACID RESISTANT (CSA)

#### EPOXY NOVOLAC COATING FOR CONCENTRATED MINERAL ACIDS

CCS Coating, Concentrated Sulfuric Acid Resistant is a two-component, rigid, novolac epoxy coating with excellent resistance to concentrated sulfuric acid (lead-acid battery acid), other strong inorganic acids and bases, and many industrial chemicals. When seeded or blended with aggregate, it can be used on properly prepared concrete and steel substrates to provide a chemical resistant surface with excellent slip/skid resistance and wear characteristics. This product is ideal for use in concrete containment and loading areas requiring resistance to strong mineral acids or bases. CCS Coating, Concentrated Sulfuric Acid Resistant will bond to properly prepared dry and damp concrete substrates and cures to a tough, blush free, tile like surface. When used outdoors, the coating is freeze/thaw resistant and will not embrittle. The standard color is concrete gray (tan gray).

#### FEATURES

- Convenient 2: 1, by vol. mix ratio
- Fast cure for short downtime
- Cures to a tough, blush-free, tile-like surface
- Bonds to dry and damp concrete without primer
- Resistant to most strong mineral acids and bases
- Environmentally safe - 0 VOCs
- Qualifies for LEEDs credits including IEQ 4.1

**LIMITATIONS:** Do not apply on wet substrates. Minimum installation and cure temperature is 50°F. Apply after daily substrate temperature has peaked. Concrete floors on or below grade must have a functioning vapor barrier to minimize the potential for blistering or delaminating of the applied coating. (Slab on grade floors should be investigated prior to coating for excessive moisture vapor transmission (see also ChemCo's MVR Coating)). Broadcast aggregate must be resistant to the chemicals used in the exposure area and must be completely encapsulated by a topcoat. Exposure to 98% sulfuric acid will cause formation of a reddish surface film that can be removed by washing with water. Do not add solvents or otherwise thin this material.

<i>Approximate Yield</i>	
<u>Coating Thickness, mil</u>	<u>Square feet/gallon</u>
6	267
15	105
20	80
25	64
30	53

**PACKAGING & COLORS:** Package sizes of Part A + Part B are 3 and 15 gallons. Standard color is tan-gray; black, safety yellow, white and brick red custom colors available.

**SHELF LIFE:** Three years in unopened, original containers when stored between 60-90°F in a dry place away from sunlight. Remixing of components may be required upon long-term storage.

**SURFACE PREPARATION:** Concrete surfaces may be dry or damp (not wet) though dry substrates are preferred and must be sound and free of all bond-inhibiting substances. Prepare surfaces in accordance with ASTM D 4259 or ACI 503R and ChemCo Systems' specific recommendations. Cleaned concrete surfaces should have a minimum strength of 250 psi in direct tension. Steel surfaces should be cleaned to "white metal" according to SSPC SP 5.

**MIXING:** CCS Coating, Concentrated Sulfuric Acid Resistance is a two-component system. The resin to hardener (Part A : Part B) mix ratio is 2:1, by volume. Read all safety data (SDS) information before handling the product. Wear safety glasses and neoprene rubber gloves when handling. Premix the individual components before use. Transfer appropriate quantities of Part A and Part B into a mixing container. Use quantities that can be applied before the pot life of the mixed material expires. Blend thoroughly using a Jiffy mixer blade attached to a low speed (350 - 750 rpm) electric or pneumatic drill. Proper mixing will take 2 - 3 minutes. In cold weather, pre-conditioning the components to 70-85°F will allow easier mixing and application.

**INSTALLING:** The recommended applied thickness for concrete coatings is two coats minimum at 6 - 8 mils per coat. Apply in multiple thin coats rather than one thick coat using a stiff bristle brush, short nap roller, squeegee or two-component spray equipment. For optimum chemical resistance, 3 coats are recommended. Subsequent coats may be applied as soon as the previous coat is touch dry (6 - 7 hr @ 70°F). Avoid excessive cure times between coats. The recommended applied thickness for floor surfacings is single or multiple coats at 20 - 30 mils per coat. Pour mixed material onto the substrate and spread to the desired coverage with a V-notch trowel or squeegee. Aggregate, if used, must be broadcast onto the coating within 15 minutes of application. The recommended aggregate size is #20 x 40 or #30 x 50 mesh. Typical aggregate broadcast rates are .75 - 1.50 lb/sq ft. See also ChemCo's separate installation specification for CSA Coating.

**CLEAN UP:** Excess mixed product is best removed from the work area end tools before it hardens. Use of rags and solvents such as acetone or heavy-duty detergents facilitate cleaning. Cured product may be removed from tools by soaking in an epoxy stripper.

TYPICAL PROPERTIES <sup>(1)</sup>

PROPERTY <sup>(2)</sup>	TEST METHOD	VALUE
Mix Ratio, A:B,	by vol by wt	2: 1 100: 39
Color:	Part A Part B Mixed	VISUAL Concrete tan-gray Amber Concrete tan-gray
Weight per Gallon, lb:	Part A Part B Mixed	ASTM D 1475 10.3 8.3 9.7
Viscosity, p:	Part A Part B Mixed	ASTM D 2393 63 14 55
Gel Time, 200 g, minutes		ASTM D 2471 40
Thin Film Touch Dry Time, touch dry Hours hard dry		ASTM D 1640 6 16
Recoat Time, hours:	@ 60° F @ 73° F @ 90° F	CHEMCO 10 - 72 6 - 32 4 - 16
Tensile Strength, psi		ASTM D 638 6500
Elongation at Break, %		ASTM D 638 2.0
Compressive Yield Strength, psi		ASTM D 695 10,500
Compressive Modulus, psi		ASTM D 695 300,000
Heat Deflection Temp., deg F		ASTM D 648 115
Hardness, Shore D		ASTM D 2240 85
Taber Abraser, mg loss		ASTM D 4060 117 (2)
Bond Strength to damp mortar, psi		ASTM D 4547 250 (3)

(1) Cure schedule, 7 days at 73° ± 4 F and test temperature, 73° ± 4 F unless otherwise indicated.

(2) CS-17 wheels, 1000 g load, 1000 cycles.

(3) Compressive strength of cement mortar, 4500 psi.

## TYPICAL CHEMICAL RESISTANCE PROPERTIES (WEIGHT CHANGE UPON IMMERSION)

<u>Chemical Temp.</u>	<u>deg. F</u>	<u>Time, days</u>	<u>Weight Change, %</u>
98% Sulfuric Acid	73	30	-0.8
25% Sulfuric Acid	73	7 30	+ 0.2 +0.5
10% Acetic Acid	73	7 30	+0.2 +0.9
50% Lactic Acid	73	7 30	+0.6 +2.5

**Handling and Toxicity:** This bulletin does not accompany the product when sold. **Warning: If large quantities of mixed (A+B) epoxy are left in bulk longer than the gel time, an exothermic reaction can generate dangerous smoke and heat. Carefully add sand or dirt to dilute excess material in bulk and to decrease temperature.** For hazard warnings, safe handling and first aid instructions, CAREFULLY READ THE SAFETY DATA SHEETS AND CONTAINER WARNING LABELS. FOR INDUSTRIAL USE ONLY.

**Part A:** Liquid epoxy resin, HMIS Health Hazard Rating - 2 (Moderate Hazard). Warning! Causes eye and skin irritation. May cause allergic skin reaction. Harmful if swallowed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid prolonged or repeated contact with skin.

**Part B:** Liquid epoxy hardener, HMIS Health Hazard Rating - 3 (Serious Hazard). Contains alkaline amines. Danger! Causes severe eye and skin burns. May cause allergic skin and respiratory reaction. Combustible, corrosive. Do not get in eyes or skin or on clothing. Avoid breathing vapor. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Keep away from heat and open flame.

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