

## CCS™ COATING

### CONCENTRATED SULFURIC ACID RESISTANT (CSA)

#### Novolac Epoxy Coating For Concentrated Acids

CCS Coating, Concentrated Sulfuric Acid Resistant is a two - component, rigid, novolac epoxy coating with excellent resistance to concentrated sulfuric acid, other strong acids and bases, and many chemicals found in industrial environments. 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 ideally suited for use in containment 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, however it will acquire a chalky surface when exposed to sunlight. 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 substrates without primer
- Does not embrittle when exposed to direct sunlight
- Resistant to most strong mineral acids and bases
- Environmentally safe - 0 VOC solvents

**Limitations:** Do not apply on wet substrates. Minimum installation and cure temperature is 50°F. Apply after daily substrate temperature has peaked. Substrates on or below grade must have a functioning vapor barrier to minimize the potential for blistering or delaminating of the applied 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.

#### Approximate Yield

Coating Thickness, mil	Square feet/gallon
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, white and brick red custom colors available.

**Shelf Life:** Three years minimum in unopened, original containers when stored between 60 and 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 material safety data (MSDS) information before handling the product. Wear safety glasses and clean neoprene rubber gloves when handling the materials. 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 floor and wall 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.

**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, Hours	touch dry 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 ASTM C 109 Cement 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	+ 0.2
		30	+0.5
10% Acetic Acid	73	7	+0.2
		30	+0.9
50% Lactic Acid	73	7	+0.6
		30	+2.5

**Handling and Toxicity:** This bulletin does not accompany the product when sold. For hazard warnings, safe handling and first aid instructions, READ CAREFULLY THE MATERIAL 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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