

CCS™ GROUT, UNDERWATER EPOXY PUTTY

Epoxy for Underwater and Splash Zone Application

CCS Grout, Underwater Putty is a two - part, non-sag, epoxy paste. This extremely thick adhesive is designed for the protection of concrete and steel in the splash zone of salt-water marine structures. The product can also be used to bond surfaces which are constantly wet or submerged in seawater. Even when subjected to heavy wave action. CCS Grout, Underwater Putty is not recommended as an underwater "coating" in freshwater environments but can be used as a bonding agent in freshwater applications. CCS Grout, Underwater Putty is extremely tacky and is toughened with Kevlar® fibers for durability in high wear and impact-prone repairs

Typical Applications:

- Concrete coating and spall repair on piers, seawalls, dock floors, drainage ditches, abutments and sewer pipe.
- Protection and patching of steel structure surfaces such as pilings, drilling rigs, ship hulls, buoys, well jackets and bulkheads.
- Patching and protective coating of wooden boats, pilings and telephone poles.
- As an underwater adhesive

Limitations: The material is not recommended for use below 50 F. Heavy wave action before set may dislodge material. Placement of sample test patches or repairs are highly recommended before commencement of large-scale repairs or modifications. Do not add solvents or otherwise thin this material. Except as already stated.

Packaging: Standard package sizes of Part A + Part B are 2, 10 gallon units.

Shelf Life: Two years minimum in unopened, original containers when stored between 60 and 90 deg F in a dry place away from sunlight. Remixing of components may be required upon prolonged storage.

Chemical Resistance: CCS Grout, Underwater Putty has excellent resistance to a wide range of commonly encountered deicing chemicals, salts and aircraft and automotive fluids. It has limited resistance to hydrocarbon solvents. Performance is a function of the specific chemical and concentration, exposure times and housekeeping procedures. For information on specific chemicals and exposure conditions, contact a ChemCo Systems, Inc., technical representative.

Application Instructions:

Surface Preparation

Wet or dry sandblast to remove all loose and deteriorated material, other surface contaminants such as tars, oils, paints, waterproofing materials, rust, barnacles, etc. which may interfere with the formation of a good bond. 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 - Transfer the appropriate quantities of Part A and Part B from their container onto a flat clean board or sheet of rigid plastic. Begin to mix the components with putty or palette knife or a margin trowel. Vigorous kneading by hand is required for 3 to 5 minutes to obtain adequate and complete mixing. For mixing larger quantities of material, a heavy duty "Kol" or similar mixer may be employed. The material should always be mixed under dry conditions.

Installing - For underwater application the technician should wear a diver's wet suit, well fitting rubber gloves, a life jacket and be secured with a "life line". In a splash zone application the coating should extend to 1 foot below and above the tidemarks.

- a) **Unsupported Paste** The thick mass of the mixed material is applied to the substrate above the waterline, distributed uniformly over the area to be coated with the gloved hand and worked gradually downwards below the waterline. The average film thickness after distribution of the material over the area to be coated should be 1/4 to 3/4 inch; the edges should be feathered. To establish good contact with wet surfaces the paste should be held against the area for 10 to 15 seconds. Wetted tools such as palette knives or trowels may be used to facilitate uniformity of the coating.
- b) **Supported Paste** The mixed material may be applied to surfaces using a fabric support. In this application the mixed material is doctored onto canvas, glass cloth or other suitable fabric with a putty knife or squeegee to produce a film thickness of 1/4 to 1 inch. The wet lay-up is transferred to the surface to be coated and hand-pressed in place. Whenever possible, the in place lay-up is secured with temporary or permanent studs or bands to facilitate bonding to the substrate during cure.
- c) **Thick Coating** If layers or patches thicker than 1" are required, it is strongly suggested that a test patch of the required thickness be placed and allowed to cure for a minimum of 48 hours. This is due to the potential to develop slight shrinkage cracks and the potential for exotherm particularly in warmer waters as the polymer cures under certain environments. The optimum method to get thickness greater than 1" is to build up maximum thickness layers about 24 hours apart.

TYPICAL PROPERTIES ⁽¹⁾

Property ⁽²⁾		Test Method	Value
Mix Ratio, A:B,	by vol by wt		4:5 100: 113
Color:	Part A Part B Mixed	VISUAL	Straw/White Black Dark Gray
Weight per Gallon, lb:	Part A Part B Mixed	ASTM D 1475	14.2 12.9 13.6
Non-Sag Character (Inches)	Mixed	ASTM D 2730	3/4
Gel Time, min. (200g)		ASTM C 881	60
Thin Film Properties:		ASTM D 1640	
Hard Dry Time, hours	@ 73° F @ 60° F		3 8
Bond Strength, psi: (Cured to cured cement mortar, Specimen prepared and cured under water)		ASTM D 4541	250 (2)

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

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

Clean up: Excess mixed product is best removed from the work area and 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.

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.

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- 2 (Moderate Hazard). Contains alkaline amines. Warning! Causes eye and skin irritation. 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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