

CCS™ BINDER, POLYUREA LWL

Elastomeric Polyurea Binder for Joints, Nosing and Spall Repair

CCS Binder, Polyurea LWL is a two-component, long work life, elastomeric, polyurea binder designed for interior and exterior use. Blended with suitable aggregate, Polyurea LWL mortars, concretes and flowable grouts are used for rebuilding damaged joint nosing and repairing spalled and deteriorated concrete. Neat binder may be used for gravity filling of saw cuts, control joints and non-structural cracks in concrete. Cured Polyurea LWL has excellent resistance to vehicular impact and abrasion, most automotive and aircraft fluids and pavement deicing chemicals. Its short cure cycle, tolerance of damp surfaces (primer required; see below) and elastomeric mechanical properties make it ideally suited for a wide variety of concrete repairs. Each type of repair may have specific application and performance requirements. Evaluation of trial mixes particularly under low temperature, damp conditions prior to installation is recommended.

Features

- Convenient 1:1, by vol. mix ratio
- Fast cure for short downtime
- Bonds to dry and damp substrates
- Does not embrittle; stays tough and elastic
- Resists road, auto and aircraft chemicals
- Environmentally safe- No VOC solvents

Limitations: Prime coating of the substrate required on damp surfaces and for maximum bond strength on dry surfaces. Do not apply primer/binder system on wet substrates. Minimum installation temperature is 50 deg. F. Minimum cure temperature is 40 deg. F. Do not add solvents or otherwise thin this material.

Packaging & Colors: Standard package sizes of Part A & Part B are 2 and 10 gallons. Standard color is Dark blue-gray; custom colors available

Shelf Life: One-year minimum in unopened, original containers when stored between 60 and 90 deg. F in a dry place away from sunlight. Partially used containers of Part A must be flushed with nitrogen and resealed immediately after use to preserve shelf stability.

Chemical Resistance: Polyurea LWL is resistant to a wide range of commonly used deicing chemicals and aircraft and automotive fluids. It has limited resistance to hydrocarbon solvents. Performance is a function of the specific chemical and concentration, ambient and solution temperatures, exposure times and housekeeping procedures. For information on specific chemicals and exposure conditions, contact a ChemCo Systems, Inc., technical representative.

Surface Preparation: Concrete surfaces may dry or damp but not wet (Polyurea Primer required) 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.

Aggregate Selection

For mortars: The preferred aggregate for most applications is high silica sand (>85% SiO₂), washed, kiln-dried, graded and bagged. The sand particles should be round to sub angular in shape. A good gradation for low void content is a 2:1 blend of #12 and #30 mesh. If using a single sand fraction, a #16 or #20 mesh is recommended.

For concretes: A 1:1 blend of 3/8 gravel and #16 or #20 mesh sand is recommended. The maximum particle size of the aggregate selected should not exceed 1/3 of the installed thickness.

Mixing Polyurea: Polyurea LWL is a two-component system. The resin to hardener (Part A: Part B) mix ratio is 1:1, 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 drawing from bulk packaging. Transfer the appropriate quantity of Part A into a mixing container. Begin mixing using a Jiffy mixer blade attached to a low speed (350 - 750 rpm) electric or pneumatic drill. Add the appropriate quantity of Part B taking care to slowly pour the Part B into the vortex of the mixing Part A. The addition of Part B should take 30 - 45 seconds. Mix an additional 1 - 2 minutes after completing Part B addition. Pour the mixed binder into a mortar or plaster mixer, add aggregate (coarse first, fine last) and mix an additional 1 - 2 minutes.

Installing: On dry substrates, priming is not necessary. On damp substrates, prime with mixed Polyurea Primer at a coating thickness of 8 - 10 mils (160 - 200 sq ft/gal). Apply the Polyurea LWL neat binder, mortar, concrete or flowable grout to the primed substrate when the primer is set but still tacky (approx. 1 - 1.5 hours @ 75 deg. F). Mortars and concretes may be rodded, tamped, screeded or troweled into place. Strike-off level with the surrounding substrate with a screed bar or trowel. Clean application tools frequently.

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.

TYPICAL PROPERTIES ⁽¹⁾

Property ⁽²⁾		Test Method	Value
Mix Ratio, A:B,	by vol by wt		1: 1 100: 92
Color:	Part A Part B Mixed	VISUAL	Dark blue-gray Reddish amber Dark blue-gray
Weight per Gallon, lb:	Part A Part B Mixed	ASTM D 1475	9.2 8.1 8.7
Viscosity, cp:	Part A Part B Mixed	ASTM D 2393	1300 100 700
Gel Time, 60 g, minutes		ASTM C 881	25
Thin Film Cure Time, hours:	touch dry hard dry	ASTM D 1640	1.5 5.5
Tensile Strength, psi Elongation at Break, %		ASTM D 412	1000 225
Tear Resistance, lbf/in Water Absorption, %		ASTM D 624 ASTM D 570	185 1.2
Shore Hardness,	A durometer D durometer	ASTM D 2240	93 41
Bond Strength to Prime Coated psi: ASTM C 109 Cement Mortar,	dry damp	ASTM D 4541	Cement mortar failure (3) 300 (3)
Taber Abraser, mg loss		ASTM D 4060	43 (4)

- (1) The properties listed are typical and descriptive of the product and should not be used for specification purposes. For specification preparation, reference the ChemCo Systems, Inc., product guideline specification.
- (2) Cure schedule, 7 days at 73 ± 4 deg. F and test temperature, 73 ± 4 deg. F.
- (3) Compressive strength of cement mortar, 4500 psi.(4) CS - 17 wheels, 1000 g load, 1000 cycles.
- (4) CS-17wheels, 1000 g load, 1000 cycles.

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 polyurethane 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 amine 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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