

CCS™ INSULPOX

LOW MODULUS TOUGHENED INSULATING POLYMER CONCRETE (IPC)

TECHNICAL DATA SHEET FOR PROFESSIONAL CONTRACTOR USE ONLY

DESCRIPTION

CCS™ InsulPOX is a three-component, trowelable, low modulus, toughened polymer overlay formulated specifically for exterior applications where thermal insulation is required including trench floors and walls and sumps in LNG terminals as well as containment trenches for other cryogenic liquified gases. The cured product has excellent resistance to abrasion as well as thermal and mechanical shocks and can withstand foot and lightweight wheeled traffic. Its long cure cycle, tolerance of surface dampness, resistance to many chemicals and solvents make it ideally suited for a variety of installations or repairs. InsulPOX can be pre-cast into 0.75- 1" thick panels of 4'x8' or other custom sizes for faster installation on vertical surfaces and has excellent compressive strength for an insulating polymer. The neat cured epoxy meets **ASTM C881, Type III, Grade 1**.

FEATURES

- Non-flammable polymer
- Long working time allows easy placement
- Does not embrittle; stays tough and flexible
- Withstands thermal and mechanical shock
- Environmentally safe - 0 VOC solvents

CCS InsulPOX is a three-component polymer concrete overlay. Its low thermal conductivity provides excellent insulating properties in cryogenic applications such as secondary containment for LNG or other cryogenic gas leaks or spills. InsulPOX contains UV stabilizers and flame-retardant additives that render it nonflammable.

SURFACE PREPARATION

Concrete surfaces may be dry or damp 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. For concrete substrates with potential moisture vapor transmission (no underlying vapor barrier), consider pretreating with CCS MVR Primer.

MIXING

CCS™ InsulPOX is a three-component system. The resin to hardener (Part A : Part B) mix ratio is 2:1, by volume. Read safety data sheet (SDS) information before handling the product. Wear proper PPE which includes but is not limited to safety glasses, rubber gloves and N95 mask when handling the materials. Premix the individual components before drawing from bulk packaging. Transfer appropriate quantities of Part A & Part B into a mixing container. Blend thoroughly using a Jiffy mixer blade attached to a low speed (350 - 750 rpm) electric or pneumatic drill and add Part C ceramic microspheres while mixing at a low speed with a mortar mixer or by hand. Continue blending at

TECHNICAL DATA¹

PHYSICAL PROPERTIES ²	TEST METHOD	VALUE
Mix Ratio, A:B:C		use entire kit 100:44:96.7 by weight
Color		Part-A: Milky Liquid Part-B: Milky Liquid Part-C: Concrete Grey/Tan Mixed: Concrete Grey/Tan
Weight per Gallon	ASTM D1475	Part-A: 9.34 lbs Part-B: 8.03 lbs Mixed: 8.90 lbs
Viscosity	ASTM D2393	Part-A: 425 cp Part-B: 350 cp Mixed: 400 cp
Gel Time, 1 quart	ASTM D2471	4.5 hours
Tensile Strength	ASTM D638	2200 psi (3)
Tensile Modulus	ASTM D638	16000 psi (3)
Elongation at Break	ASTM D638	60%
Compressive Strength	ASTM D695	1750 psi (3)
Bond Strength to Dry ASTM C 109 Cement Mortar	ASTM C109: Cement Mortar, dry (neat epoxy)	500 (3)
	ASTM C109: Cement Mortar, damp (neat epoxy)	430 (3)
	Cured InsulPOX, roughened surface, dry (full, mixed system)	70
	ASTM C109: Cement Mortar, dry (full, mixed system)	90
BThermal Conductivity, at -260 oF (approx. boiling point of LNG)	ASTM F433	0.043 Btu/hr/ft/oF 0.074 W/m/K



Flammability Mixed A+B+C	ASTM D635	Not Flammable
Density Mixed A+B+C	ASTM D792	0.768
<small>(1) (1) The properties listed are typical and should not be used for specification purposes. For specification preparation, consult ChemCo Systems. (2) Cure schedule, 7 days at 73° ± 4 F and test temperature, 73° ± 4 F. (3) Neat resin, no aggregate or Part C added. (4) Compressive strength of cement mortar, 4500 psi.</small>		

a low speed for 1-2 minutes after all of the Part C is added. Mix only epoxy quantities that can be installed before the pot life of the mixed material expires.

INSTALLING

Apply the epoxy insulating polymer concrete overlay to the clean, sound substrate. The polymer concrete may be rodded, tamped, screeded or troweled into place. Clean application tools frequently. Additional troweling 2 hours (depending on temperature) after initial mixing (post installation) is recommended to allow air entrained during mixing to escape. Blowing forced hot air (150-200 oF) over the curing polymer will facilitate the escaping of entrained air. Allow to cure for at least 8 hours post installation (depending on ambient temperature) prior to allowing foot traffic on the surface. A trial application is strongly recommended prior to final installation on a project in order to evaluate the nature of the material as it interacts with the substrate. If heavy foot traffic is anticipated, sand may be broadcasted to provide slip resistance. Consult ChemCo Systems for sand application guidelines.

NOTES: In exterior applications over concrete, the optimum time period to install the overlay is late afternoon or evening during a period of declining substrate temperatures. In very hot climates, it is best to apply at night. If there is moisture vapor drive through the underlying substrate, this may cause pinholes in the epoxy insulating polymer concrete. Precast panels of InsulPOX can be installed using CCS Bonder Paste LWL as a trowel applied paste between the substrate and the InsulPOX panel.

CLEAN UP

The excess mixed product is best removed from the work area and tools before it hardens. The 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.

CHEMICAL RESISTANCE

It has limited resistance to hydrocarbon solvents and acids and very good resistance to alkalis. 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 ChemCo Systems.

PACKAGING & COLORS

- Standard package sizes of Part A + Part B are 7.93 gallons

combined. Part C is packaged in a 50 lb. sack per unit.

- Standard mix color is concrete tan/grey.

SHELF LIFE

Three years minimum in unopened, original containers when stored between 60 and 90°F in a dry place away from sunlight.

LIMITATIONS

Minimum installation temperature is 40°F. Maximum thickness of approx. 2" per lift. Do not add solvents or thin this material. Applying this material on a grade greater than 1% can lead to self-leveling. Not suitable for heavy equipment traffic.

HANDLING AND TOXICITY

This bulletin does not accompany the product when sold. For hazard warnings, safe handling, and first aid instructions, CAREFULLY READ THE 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 - 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.

Part C: Ceramic microspheres, may contain small quantities of crystalline silica. Use N95 mask when handling.

CCS™ INSULPOX

LOW MODULUS TOUGHENED INSULATING POLYMER CONCRETE (IPC)

TECHNICAL DATA SHEET FOR PROFESSIONAL CONTRACTOR USE ONLY

PROJECT NOTES



Limited Warranty: Please read all information in the General Guidelines, Technical Data Sheets, Guide Specifications and Safety Data Sheets (SDS) before applying material. These products are for professional use only and preferably applied by professionals who have prior experience with ChemCo Systems materials or have undergone training in application of ChemCo Systems materials. Published technical data and instructions are subject to change without notice. Contact your local ChemCo Systems representative or visit our website for current technical data, instructions, and project specific recommendations.

ChemCo Systems warrants its products to be free of manufacturing defects and that they will meet ChemCo Systems' current published physical properties. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product which proves to be defective. There are no other warranties by ChemCo Systems of any nature whatsoever expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. ChemCo Systems shall not be liable for damages of any sort, including remote or consequential damages resulting from any claimed breach of any warranty whether expressed or implied. ChemCo Systems shall not be responsible for use of this product in a manner to infringe on any patent held by others. In addition, no warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. ChemCo Systems reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

Disclaimer: All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the user's responsibility to satisfy himself, by his own information and test, to determine suitability of the product for his own intended use, application and job situation and user assumes all risk and liability resulting from his use of the product. We do not suggest or guarantee that any hazard listed herein are the only ones which may exist. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements, whether in writing or oral, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for the purpose of establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and ChemCo Systems makes no claim that these tests or any other tests accurately represent all environments. ChemCo Systems is not responsible for typographical errors. © 2022 ChemCo Systems. All rights reserved. Revision 20220911.AG 3 EP CCS-251, InsulPOX