

Product Data Sheet

DESCRIPTION:

CEM EPIX CR-100 is a 2-component, Cycloaliphatic, Chemical Resistant 100% solids Universal use epoxy with excellent adhesion to a variety of substrates including, but not limited, to concrete, metal and other properly prepared, sound and solid substrates.

Resistant to a broad range of chemicals including caustic, acids, fuels and solvents, CEM EPIX CR-100 is a user-friendly, low odor, low VOC coating system. This universal epoxy is an excellent choice for use as a primer, solid color, clear coat, metallic, vinyl chip, shop floor or color quartz broadcast systems, applications of epoxy mortars and patching as well as other seamless floor options.

RECOMMENDED USES:

- 3 coat / Thin-Mil coating systems
- Matrix for CEM Metal coatings
- Matrix for broadcast systems - Vinyl Chip, Quartz & Shop Floor
- Sealer for Commercial Kitchen floor coating systems
- Acidic Environments such as Battery Charging & Sanitation Wash Down bays in food processing facilities
- Matrix for Epoxy Mortar systems
- Patching cracks, gouges, chips, etc. (when mixed with Silica Fume and/or sand)

HIGHLIGHTS:

- Versatile – Use for priming, body coats, patching, mortars, vertical & horizontal applications in Industrial, Institutional, Pharmaceutical, Food & Beverage, Commercial, or Residential applications
- Accepts heavy forklift traffic in 24 hours at 72°F/50% Humidity
- Good Working Time yet Quicker Return to Service vs. traditional regular cure 100% solids epoxy products
- High Chemical Resistant to most acids, caustics, solvents, & alcohols
- Durable – Ideal for industrial manufacturing traffic environments
- Low Odor & Low VOC
 - Complies with VOC regulations for industrial maintenance coatings in the OTC & SCAQMD
 - Meets FDA Food Code - Physical Facilities 6-101.11 Surface Characteristics. *Not tested for CFR 21 Direct food contact.*
- No red label required for shipping

STORAGE:

Indoors between 40°F to 90°F

SUBSTRATE INSTALLATION TEMPERATURE:

50°F to 90°F with <80% Humidity

SHELF LIFE:

1 Year in original, unopened containers

AVAILABLE KIT SIZES: (**NON-STOCKING PRODUCT – MADE TO ORDER)

- 3 pint kit
- 3 gallon kit
- 15 gallon kit
- 150 gallon kit**
- 750 gallon kit**

COLORS:

CEM's Solid Color Packs – Available Separately

POTLIFE & CURE TIMES (72°F / 50% Relative Humidity):

Temperature (@ 50% Humidity)	60°F	72°F	85°F
Pot-life	45 min.	25 min.	12 min.
Working Time	50 min.	35 min.	15 to 18 min.
Tack Free	6 to 7 hrs	3½ to 4½ hrs	2½ to 3 hrs
Recoat Window	7½ to 24 hrs	4 to 24 hrs	2½ to 18 hrs
Light Foot Traffic	24 hrs	16 to 20 hrs	8 to 14 hrs
Heavy Traffic (i.e. Forklifts, pallet jacks)	24 to 36 hrs	24 to 36 hrs	10 to 14 hrs
Full Chemical Resistance	10 days	7 days	5 days

CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Abrasion Resistance, mg/loss *Taber Abraser	ASTM D4060	82.3 mg
Compressive Strength, psi (MPa)	ASTM D695	13,778 psi (95 MPa)
Flexural Strength - psi (MPa)	ASTM D790	9,036 psi (62.3 MPa)
Tensile Strength, psi (MPa)	ASTM D2370	8,586 psi (59.2 MPa)
Adhesion to Concrete	ASTM D4541	Concrete Fails
Adhesion to Steel - Pull Strength, psi (MPa)	ASTM D4541	4,366 psi (30.1 MPa)
Percent Elongation	ASTM D2370	7%
Shore D Hardness	ASTM D2240	70-75
Hardness (Pencil)	ASTM D3362	2H
VOC's	ASTM D3960	Zero (0) g/L
Gloss 60°	ASTM 1455	>95°
Viscosity – Mixed	ASTM 2196	710 cP
Volume Mix Ratio		2 Parts A : 1 Part B

*CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions Results are based on conditions at 77°F (25°C), 50% relative humidity.

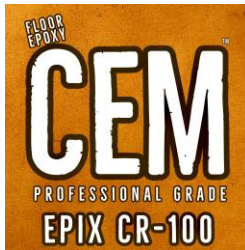
APPROXIMATE COVERAGE (NEAT):

Coverage varies due to application thickness, floor profile and absorbency of concrete.

A one gallon mixture of CEM EPIX CR-100 will cover:

Coverage Equation: $1604 \div \text{milage} = \text{Dry Film Thickness}$

Mil Thickness (inches)	Coverage per mixed gallon
5 mils	321 sq.ft.
7 mils	229 sq.ft.
10 mils	160 sq.ft.
12 mils	133 sq.ft.
15 mils	106 sq.ft.



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20 mils	80 sq.ft.
35 mils	45 sq.ft.

hours after installation. Do not install coatings when the Dew point is within 5° of the temperature.

Typical Chemical & Stain Resistance

ASTM D 1308 Test Method 3.1.1.3 Covered Spot Test of a 3 mil pigmented film after a 7 day cure prior to testing. Results are based on 24 hours covered exposure

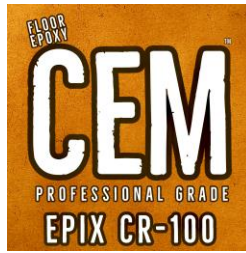
E - Excellent; G - Good (slight sign of exposure/stains, coating recovers);

NR - Not Recommended (Permanent Damage)

Acids	24 hour Exposure
Acetic Acid 25% (Vinegar)	E
Citric Acid 10%	E
Lactic Acid 88% (Milk)	G
Phosphoric Acid 85%	G
Sulfuric Acid 25% (Battery Acid)	G
Sulfuric Acid 98%	NR
Hydrochloric Acid 32% (Muriatic)	E
Nitric Acid 50%	NR
Uric Acid	E
Bases	
Ammonium Hydroxide 10%	E
EBGE	E
Sodium Chloride 20%	E
Sodium Hydroxide 50%	G
Sodium Hypochlorite (Bleach)	E
Trisodium Phosphate 10%	E
Alcohols	
Ethylene Glycol (Antifreeze)	E
Hand Sanitizer	E
Isopropyl Alcohol 91%	E
Methanol	E
Solvents	
Acetone	G
d-Limonene	E
MEK	G
Methylene Chloride	G (Clear); NR (Pigmented)
Mineral Spirits	E
PGMEA	E
Hydrocarbons	
Brake Fluid	G
Gasoline	E
Hydraulic Fluid	E
Kerosene	E
Motor Oil (SAE 30)	E
Transmission Fluid	E
Skydrol® – LD-4	G (Clear); NR (Pigmented)
MISCELLANIOUS	
Coffee	E
Coke	E
Dish Detergent (Dawn®)	E
Hydrogen Peroxide 3%	E
Ketchup	E
Monster Energy® Drink	E
Mustard	E
Tide® 1%	E
Windex® (Ammonia Based)	G
Wine – Red	E

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TEMPERATURE and HUMIDITY: Substrate temperature and materials must be maintained between 50°F (4°C) and 90°F (32°C) with less than 80% Ambient Humidity for 48 hours prior to an 24



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LIMITATIONS:

- *Not UV Stable* – All epoxy will amber over time. Ambering will be more noticeable with lighter colors, both solid pigmented and Metallic & Luster, as well as when applied clear over decorative broadcast or color quartz

INSPECT THE SUBSTRATE: Ensure the concrete is structurally sound and solid as well as free of any contaminants that may act as a bond breaker, such as oil, paint, densifier/sealers, curing compounds, wax, silicone, etc.

CHECK FOR MOISTURE: Testing concrete moisture via both the Calcium chloride (ASTM F1869) and In-situ Relative Humidity (ASTM F2170) methods is highly recommended to accurately determine both the Moisture Vapor Emission Rate (ASTM F1869) and the available Moisture Content (ASTM F2170) at the time of testing. Using only one test method will only give all of the necessary information and may not indicate other potential risks such as contaminates, etc. that may pose a risk for delamination, chemical attack, etc. which are not caused by moisture vapor emissions or high alkalinity.

A CEM MVB System along with testing and mechanical preparation, will reduce the moisture vapor emission rate to a level within the tolerance of subsequent coatings and traditional floor covering needs.

Follow the testing manufacturer's instructions precisely or visit www.astm.org, see ASTM F1869 or F2170, to purchase the test methods. Testing MUST occur within an acclimated, interior environment for the results to be valid and conclusive.

CEM Coatings Group, Inc. is strictly a product manufacturer and does NOT offer any testing or analysis but may be able to offer guidance to an appropriate testing lab or third-party inspector. When in doubt, hire a qualified third party testing firm.

For Wooden substrates, no greater than 12% is recommended prior to coating when using a wood substrate moisture meter.

CONTAMINATION OF SUBSTRATE: Concrete is porous and can become contaminated with oils, chemical from spills, etc. which act as a bond breaker. Determine if a potential bond breaker exists and a proper course of remediation.

OIL CONTAMINATION: *CEM Oil Stop* may be used to remove oils, such as petroleum, synthetic and food oils, from the surface of the concrete prior to mechanical preparation. Wood substrates contaminated with oil may require removal and replacement of the oil contaminated area with new wood to ensure proper adhesion.

CHEMICAL CONTAMINATION: Chemical contamination should be determined and may require additional testing. Once the type of contaminant is determined, contact CEM Coatings Group, Inc. for recommendations while following local regulations regarding contaminant and disposal.

NECESSARY TOOLS and EQUIPMENT:

- Plastic Sheeting to cover floor for mix station
- 3-Blade or Bird Cage flat ring bottom style mixing paddle
- Low speed ½" drill (Variable Speed 450 rpm or less)
- Mixing Buckets or Portable Mix Stations
- Premium, Non-Shed 3/8" Nap Paint Roller Covers
- Paint Roller Frame with Extension Pole
- Spiked shoes or Cleats
- Cleaning Solvent (Acetone, Denatured Alcohol, MEK, or Xylene)
- Notched Squeegee, Magic Trowel, Flat Squeegee or Flex Steel Blade Smoother (Application dependent)

NOTE: *Mix station & all application equipment should be ready for immediate use prior to mixing any product due to the epoxy pot life once mixed. Only mix enough CEM EPIX CR-100 to be placed within 20 minutes allowing for proceeding batches to tie into the wet edge for an additional 15 minutes at 72°F. Higher temperatures & humidity will shorten pot-life.*

SUBSTRATE PREPARATION

CLEANING:

Detergent scrub with a *mild Detergent*, or similar, and rinse with clean, potable water to remove surface dirt, light surface grease/oil and contaminants prior to mechanical preparation. Heavy grease and oil should be removed using *CEM Oil Stop*. If a densifier or dissipative curing compound is believed to have been present, use a biodegradable etching gel after mechanical preparation methods.

MECHANICAL CONCRETE PREPARATION:

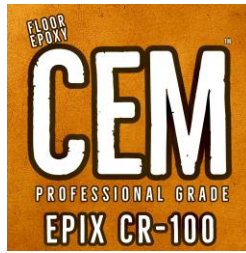
Achieve a CSP 2 to 6 (*Concrete Surface Profile in accordance with ICRI Guideline 310.2R2013, as published by the International Concrete Repair Institute*) on concrete to yield an absorbent substrate. Extent of concrete surface profile necessary will be determined based on the ultimate thickness of the floor coating system being applied. Please refer to the individual system application guide or contact CEM Coatings Group, Inc. for recommendations. As a rule thumb, thicker coating systems require more extension surface profile than a thin system that is less than 10 mils.

NON-POROUS SUBSTRATES & EXISTING COATINGS:

Always clean the surface prior to mechanical preparation to ensure potential bond breakers and surface contaminates have been thoroughly removed to avoid spreading the contamination across the floor. Once clean, sound and solid substrates should be checked for compatibility with CEM EPIX CR-100 and if compatible, begin mechanically abrading the surface to remove any weak areas and to scratch as well as degloss the entire area desired to be coated.

Should verification of proper adhesion be desired over an existing coating, follow ASTM D 4541 using an Elcometer to determine a direct tensile pull-off strength greater than 250 psi (1.7 MPa) to pass the test. It is highly recommended that a 10 foot by 10 foot test area be applied of the entire desired coating system and allowed to cure for no less than 1 month prior to performing an in-situ direct tensile bond test to determine adhesion strength values.

CEM EPIX CR-100 is to be used as part of a system, follow the recommended preparation methods for individual system application.



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NOTE: DO NOT USE MURIATIC/HYDROCHLORIC ACID TO PREPARE CONCRETE AS CHLORIDE CONTAMINATION CAN OCCUR.

**Key in all termination points using a diamond cutting blade prior to any above preparation method.*

Please refer to ICRI Guideline 310.2R2013 for more in-depth preparation details and recommendations.

MIXTURE: Open all Part A's of CEM EPIX CR-100 and use the low-speed drill with a clean mixing paddle to stir. *"Stick" mixing is not recommended.*

Part Measuring using separate paint measuring cups

- 2 Parts by Volume Part A
- 1 Part by Volume Part B
- Optional Color Packs – Use 7% by Volume of CEM's Color Packs*
* Double Quantity of White or Yellow (14% by Volume)

Mixing full 3 gallon kits:

In an empty 5-gallon pail, pour in the entire contents of CEM EPIX CR-100 Part A and CEM EPIX CR-100 Part B. If a solid color is desired, add to 3 gallons of mixed CEM EPIX CR-100:

Standard Colors:

- 1 unit of CEM's Color Pack per 3-gallon kit CEM EPIX CR-100
For White, Yellows & Safety Red:
- 2 units CEM's Color Packs per 3-gallon kit CEM EPIX CR-100

Pour measured contents into a 5 gallon pail and mix using a ½" low speed drill (*less than 450 RPM's*) and a paint mixing paddle for 2 minutes. Immediately pour out the mixed epoxy in ribbons onto the floor and continue this process tying into the wet edge with freshly mixed CEM EPIX CR-100 until complete.

NOTE:

- **DO NOT TURN THE MIXING VESSEL UPSIDE DOWN ON THE SUBSTRATE TO ALLOW THE RESIDUAL PRODUCT TO DRAIN ONTO THE FLOOR TO AVOID THE RISK OF ANY UNMIXED OR NON-THOROUGHLY CATALYZED PRODUCT FROM THE SIDES AND BOTTOM OF THE MIXING VESSEL FROM REACHING THE FINISHED FLOOR.** Best practice, pour contents of mixing vessel into a new container, mechanically stir to ensure thorough blending then transport to the floor for application as described below
- When using CEM EPIX CR-100 Part A's that had the color packs added on a previous day, always drill blend the Part A's again prior to use. Also, it is a good idea to "box" color packs, especially if using color packs from multiple batches, to ensure consistent solids colors.

COVERAGE: **See chart on page 1 of this document*

OPTIONAL LAYERS or TOPCOATS: Allow CEM EPIX CR-100 to thoroughly harden before walking on, sanding or applying additional layers and/or topcoats.

**See page 1 for approx. cure time references based on typical application temperatures.*

RECOAT WINDOW:

**See page 1 for approximate recoat window. When in doubt, sand between coats.*

MAINTENANCE: *The coating system must be allowed to cure for no less than one week (7 days) before using any mechanical cleaning equipment on the surface and no less than 24 hours before neutral cleaner or water exposure. This includes auto-scrubbers, swing buffers, sweepers, etc. Only dust and wet mop the first week. If a topcoat of Smith's*

Polyaspartic was applied, wait a minimum of 3 days before using mechanical cleaning equipment.

Regular cleaning, to include dust mopping, is crucial to maintain the appearance and to achieve the appropriate longevity of any floor coating system. Cleaning cannot occur too often. Spills should be removed quickly. Avoid the use of Polypropylene or abrasive bristle (Tynex®) brushes as these are known to create scratch patterns and lower the sheen of the finish.

Proper maintenance will help to maximize your investment by removing particles that scratch and dull the appearance of a floor coating. The floor should be swept daily and scrubbed once per week or per month depending on the amount and type of soils present. Environments with oils or regulated by health departments will need a more strict cleaning regiment.

DETERGENT: Always use the least aggressive detergent necessary to remove the residue. Typically, coated floors may only need a detergent scrub on a weekly or monthly basis depending on the environment. Daily dust mopping or water only mopping/scrubbing is highly recommended. Environments with exposure to foods, oils, chemicals, ink, etc. should be detergent scrubbed daily, possibly enough after every shift.

Caution: Do not drag or drop heavy objects across any floor, including coatings as scratching, gouging or chipping may occur to the concrete or the coating itself. This includes the tip of the forks on a forklift, nails protruding from a pallets, etc.

Rubber tires are prone to plasticizer migration, especially aviation tires and high performance car tires. Plasticizer will stain coating and commercial flooring leaving an amber, yellow-like stain that can be permanent. This can be more noticeable where aircraft or vehicles are stationary for longer period of time, more so in non-climate controlled environments such as aircraft hangars with lighter colored floors. To avoid plasticizer staining, use a piece of Plexiglas® or LEXAN® panels, cut a few inches in diameter larger than the tires that will rest on the panels, between the floor and the contact point of the tire when storing rubber tired vehicles on any floor, including floor coating systems. Citric based degreasers will help to remove plasticizer residues from a coating surface and reduce staining risk if used before a stain sets in.

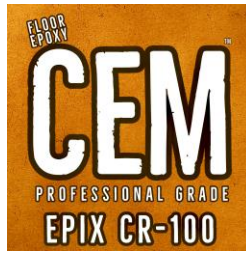
Avoid spinning tires on the surface of a coated floor. The heat created from the friction of a spinning tire will quickly soften the coating causing permanent damage to the finish.

Should a gouge, chip or scratch occur, touch-up the damaged areas immediately to avoid chemical or water intrusion to the concrete which could create additional damage. A thin layer of clear nail polish to the damaged area will provide some minimal protection until the area can be properly repaired.

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SLIP RESISTANCE: CEM Coatings Group, Inc. recommends the use of angular slip-resistant aggregate in all coatings that may be exposed to wet, oily or greasy conditions as well as any condition where increased traction may be necessary. It is the contractor and end users' responsibility to determine the appropriate traction needs and footwear necessary for the conditions as well as setting performance parameters prior to beginning the application, testing to determine parameters have been met upon completion to achieve the end users documented safety standards.

Mock-ups are highly recommended as part of the evaluation process to determine the appropriate amount of slip-coefficient necessary for the environment.

LIMITED LIABILITY: Liability is limited to replacement of defectively manufactured product of the same type and cost of the originally purchased product upon presentation of a valid, fully paid invoice at the time of a claim. No warranty shall be granted for outstanding invoices or for accounts with unpaid balances until paid in full. No damages, whether consequential, liquidated or other, shall be provided under this Limitation of Liability and Limited Warranty. Should a product defect be suspected at the time of application, cease use of the product immediately and notify CEM Coatings Group, Inc. for investigation as you will be responsible for the cost to repair or replace any work performed with product(s) suspected of defect. Record batch codes and save all products you purchased in order for any warranty to occur allow with the invoice that matches said quantity. Defects determined after installation must be reported to CEM Coatings Group, Inc. within 10 business days of discovery.

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