



EUCLID CHEMICAL

EUCO #452 EPOXY SYSTEM

ASTM C881 COMPLIANT, HIGH MODULUS
EPOXY ADHESIVE

PACKAGING

3 gal (11.4 L) unit

1 gal (3.8 L) unit

CLEAN UP

Clean tools and application equipment immediately with water. Clean spills or drips with water while still wet. Hardened material will require mechanical abrasion for removal.

SHELF LIFE

2 years in original, unopened package

SPECIFICATIONS AND COMPLIANCES

- EUCO #452 LV complies with ASTM C881 Types I and IV, Grade 1, Classes B and C
- EUCO #452 MV complies with ASTM C881 Types I and IV, Grade 2, Classes B and C

DESCRIPTION

EUCO #452 EPOXY SYSTEM is a 100% reactive, two-component material designed as an adhesive and binder for numerous application needs. This high-modulus material is available in low viscosity (LV) or medium viscosity (MV).

PRODUCT CHARACTERISTICS

FEATURES/BENEFITS

- Superior strength
- May be extended with sand or other aggregate for thick applications and mortar repairs
- Easy to use mix ratios
- Designed for application at temperatures of 40 °F (4 °C) and higher

PRIMARY APPLICATIONS

- Sand-seeded bonding for concrete toppings
- Anchoring bolts, dowels, and pins
- General adhesive needs
- Bonding concrete, steel, ceramic, and wood
- Mix with sand to create a repair mortar
- Filling cracks in concrete and masonry

APPEARANCE

Part A liquid is white in color and Part B liquid is gray in color for both Euco #452 LV and Euco #452 MV.

COVERAGE

EUCO #452 LV: For injection, 1 neat gal (3.8 L) yields 231 in³ (3,785 cm³) of epoxy. The coverage rate as a primer/sealer is approximately 125 ft²/gal (3.1 m²/L), depending upon the texture of the existing slab. 1 gal (3.8 L) of neat EUCO #452 LV epoxy mixed with 3 gal (11.4 L) of dry 20/40 mesh silica sand will yield approximately 643 in³ (10,537 cm³) of mortar.

EUCO #452 MV: For bonding, 1 neat gal (3.8 L) yields 231 in³ (3,785 cm³) of epoxy. The coverage rate for bonding toppings is approximately 100 ft²/gal (2.5 m²/L), depending upon the texture of the existing slab. 1 gal (3.8 L) of neat EUCO #452 MV epoxy mixed with 3 gal (11.4 L) of dry 20/40 mesh silica sand will yield approximately 643 in³ (10,537 cm³) of mortar.

TECHNICAL INFORMATION

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Test Method	Test Property	Euco #452 LV	Euco #452 MV
ASTM C881	Gel Time	30 minutes	30 minutes
-	Working Time	90 minutes	90 minutes
ASTM C882	Bond Strength psi (MPa)	3,200 (22.1)	2,500 (17.2)
ASTM D570	Water Absorption @ 24 hours, %	0.15	0.08
ASTM C695	Compressive Modulus psi (MPa)	3.97 x 10 ⁵ (2,741)	3.21 x 10 ⁵ (2,217)
ASTM C695	Compressive Strength psi (MPa)	11,360 (78.3)	12,890 (88.9)
-	Appearance, Mixed	Gray	Gray

DIRECTIONS FOR USE

Surface Preparation: The surface must be structurally sound, clean and free of grease, oil, curing compounds, soil, dust and other contaminants. New concrete and masonry must be at least 28 days old. Surface laitance must be removed. Concrete surfaces must be roughened and made absorptive, preferably by mechanical means, and then thoroughly cleaned of all dust and debris. If the surface was prepared by chemical means (acid etching), a water/baking soda or water/ammonia mixture, followed by a clean water rinse, must be used for cleaning, in order to neutralize the substrate. Route cracks and blow dust/debris from them with oil-free compressed air. Allow substrate to dry before EUCO #452 epoxy application. Following surface preparation, the strength of the surface can be tested if quantitative results are required by project specifications. An elcometer or similar tensile pull tester may be used in accordance with ASTM D 4541, and the tensile pull-off strength should be at least 250 psi (1.7 MPa). When EUCO #452 epoxies are being mixed to a mortar consistency and then used to perform patching and repairs, provide a CSP of 3 to 5 in accordance with ICRI 310.2.

When coating steel, all contamination should be removed and the steel surface prepared to a "near white" finish (SSPC SP10) using clean, dry blasting media.

Mixing: Mix EUCO #452 epoxies using a low-speed drill and a mixing paddle. Pre-mix Part A and Part B separately for approximately 1 minute each. Combine Part A and Part B in a 2 to 1 ratio by volume, then mix thoroughly for 3 to 5 minutes. To make EUCO #452 epoxy mortar, gradually add clean, dry, 20/40 mesh silica sand to previously mixed EUCO #452 epoxy and mix thoroughly for 3 to 5 minutes. The mix ratio of aggregate to mixed epoxy is approximately 3 to 1 by volume, but can be modified depending on the desired consistency of the mortar.

Scrape the bottom and sides of the containers at least once during mixing. Do not scrape bottom or sides of the container once mixing operations have ceased; doing so may result in unmixed resin or hardener being applied to the substrate. Unmixed resin or hardener will not cure properly. Do not aerate the material during mixing. The mixing paddle types recommended to keep aeration at a minimum are drill mixing paddle #P3 and #P12, as found in Guideline 320.5R-2014, published by ICRI.

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DIRECTIONS FOR USE (CONTINUED)

Application: Bonding fresh concrete to hardened concrete (EUCO #452 MV): Apply EUCO #452 epoxy by brush, roller, or squeegee to the prepared, existing concrete substrate. While the epoxy is still wet, broadcast clean, dry aggregate into the resin to "refusal" (until the aggregate is longer being saturated by the epoxy). If any area of aggregate looks "wet" during the broadcast, immediately broadcast additional aggregate over those areas. Aggregate application rates are typically between 0.75 and 1.00 lbs/ft² (3.7 and 4.9 kg/m²) depending on the aggregate being used. Allow the epoxy to cure, then sweep and/or vacuum up the excess aggregate. Apply subsequent topping to the dried, sand-seeded epoxy.

Bonding hardened concrete to hardened concrete (EUCO #452 LV and MV): Apply by spatula, brush, or trowel. Ensure the surfaces to be joined have uniform coatings of EUCO #452 epoxy. For optimum results, the bond line should not exceed 1/8" (3.2 mm). Join surfaces and hold or clamp firmly until the epoxy gels. Ideally, a small amount of adhesive should exude from the joint. Surfaces must be mated while the adhesive is still tacky.

Anchoring bolts, dowels, pins (EUCO #452 LV and MV): EUCO #452 LV and MV can be used neat or as a mortar to grout vertically-aligned anchors (into a horizontal substrate). The anchor hole should be free of all debris before grouting. The optimum hole size is 1/16" (1.6 mm) annular space (1/8" (3.2 mm) larger diameter than anchor diameter). Depth of embedment is typically 10 to 15 times anchor diameter.

Patching and repairs (EUCO #452 LV and MV): Apply EUCO #452 epoxy neat as a primer coat to the prepared concrete surface. Mix the EUCO #452 epoxy into a mortar and apply to the area by trowel or spatula in lifts of 1" to 1-1/2" (25 to 38 mm) before the neat primer coat becomes tack free. Allow each lift to reach initial set before applying subsequent lifts.

Pressure injecting vertical cracks (EUCO #452 LV): Attach injection ports and seal the face of the crack with DURAL 452 GEL or DURAL FAST SET GEL (see instructions on technical data sheet). Allow the sealing gel to sufficiently harden before injecting, to prevent blowouts. Pump EUCO #452 LV into the crack via the injection ports, using two-component pressure injection equipment. Start at the bottom of the crack and work upwards from port to port. Cap off ports as you proceed up the crack to ensure that EUCO #452 LV is kept contained within the crack. DO NOT INJECT IF WATER IS LEAKING FROM THE CRACK.

Horizontal cracks (EUCO #452 LV): Open cracks by mechanical means and ensure that the prepared crack is free of all debris and standing water. If pressure injecting, instructions are the same as for vertical cracks. If gravity feeding, pump EUCO #452 LV until cracks are completely filled. If working on an elevated slab, ensure the bottom of the slab is sealed prior to injecting or gravity feeding the crack, to ensure epoxy does not leak through.

Priming/sealing (EUCO #452 LV): Apply EUCO #452 LV by brush, roller, or squeegee to the prepared substrate. Do not allow the material to puddle. Extremely porous substrates may require a second coat. Place subsequent epoxy coatings after the prime coat has become tack free, but within 24 hours of prime coat application.

PRECAUTIONS/LIMITATIONS

- These instructions do not dictate mechanical surface preparation required prior to ready-mix concrete toppings. This product is not intended to excuse or replace proper mechanical surface preparation. Please refer to ACI 302 Section 4.3.2 and Table 4.1, along with the project engineer for guidance on proper surface preparation for ready-mix concrete toppings.
- Store EUCO #452 epoxies indoors, protected from moisture, at temperatures between 45 and 110 °F (7 and 43 °C)
- Surface and ambient temperatures during applications should be between 40 and 90 °F (4 and 32 °C)
- Material temperatures during applications should be between 60 and 90 °F (15 and 32 °C)
- Working time and cure time will decrease as the temperature increases, and will increase as the temperature decreases
- Do not thin EUCO #452 epoxies
- EUCO #452 epoxies will discolor upon prolonged exposure to ultraviolet light and high-intensity artificial lighting.
- EUCO #452 epoxies are not to be used as a finished/aesthetic coating
- Do not use EUCO #452 LV or MV for overhead anchoring
- Do not use EUCO #452 LV or MV for horizontally-aligned anchors (into a vertical substrate)
- Bring materials as close to 70 °F (21 °C) as possible prior to mixing and use. Do not heat with open flames.
- In all cases, consult the product Safety Data Sheet before use

Rev. 05.25

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