

DAROTopp® EMS

Advanced Epoxy Resin Moisture Mitigation Solution

Division 7

07 10 00 Dampproofing and Waterproofing

Suitable Substrates

Clean, sound, stable, dry and properly prepared structural concrete with a CSP of 3

LEED

DAROTopp® EMS may contribute to LEED certification of projects as follows:

Indoor Environmental Quality EQ 4.2

Low Emitting Materials
VOC content <99g/l

Materials and Resources MR 5.1

Regional Manufactured
Cleveland, OH

DAROTopp® EMS is a two part, 100% solids epoxy moisture mitigation system for the control of vapor emissions in concrete. DAROTopp® EMS is an effective barrier to moisture up to 100% relative humidity (ASTM F2170-11), and/or 25 lbs MVER (ASTM F1869-11). DAROTopp® EMS's low viscosity allows for fast and easy installation over concrete.

DAROTopp® EMS utilizes advanced epoxy resin systems (Benzyl Alcohol and Nonylphenol free), is VOC compliant resistant to high pH levels making it a perfect solution for concrete subject to high moisture content (RH). DAROTopp® EMS meets ASTM F3010-13 standards when tested per ASTM E96 at 12 mils thickness.

Features

- 100% solids BA and NP free epoxy
- One coat, low viscosity application
- Low VOC and low odor
- Advanced epoxy resin system addresses vulnerability to osmotic blistering
- Compliant with ASTM F3010-13; Permeability less than 0.1 perm at 12 mils in dry film thickness (DFT)
- An effective barrier against migration of alkalinity from concrete to flooring adhesives
- Low viscosity system for easy installation
- Pre-measured containers reduce installation time by eliminating the need to measure mix ratios

DAROTopp® EMS may be applied on green concrete as quickly as 7 days after placement. Concrete surface must be dry, with no curing compounds or surface treatments applied. Subsequent shrinkage (cracking) or movement of green concrete slabs treated with DAROTopp® EMS are not the responsibility of DARO Flooring Systems USA LLC.

Properties

Composition	2C 100% Solids Adv. Epoxy resins	
Color	Part A - Clear Yellow	Part B - Clear Yellow
Packaging 4.74 G Kit	Part A: 3.24 US Gallon in 5.00 US Gallon Pail Part B: 1.50 US Gallon in 2.00 US Gallon Pail)	
Shelf Life	2 years stored (see Storage on PDS)	
VOC (ASTM D3960)	<99 g/L	
Viscosity (ASTM D2196)	Approx. 600 cps (when initially mixed)	
Consistency	Pourable Liquid	
Flash Point	>199°F (93°C)	
Placement Time	20 minutes at 70°F	
Dry Time to Traffic @73F*	5- 6 hrs *See dry time section	
Coverage per 4.74 USG Kit	app. 600 sq ft (12 mils) on Concrete CSP3	

Performance

Permeability by ASTM E96-05	<0.1 perm (12 mils DFT)
Resistance to Alkalinity (pH 14)	
14 day spot test - covered	No effect
14 day spot test, uncovered	No effect
14 day immersion	No effect
Pull Off Adhesion by ASTM D7234	>300 psi
Compliant with ASTM F3010-13	Yes



Storage

Store in original packaging in a dry environment between 40°F - 95°F (4°C - 35°C).

Clean-up

Clean tools and equipment with soap and water or denatured alcohol immediately after using. Wash hands and skin with soap or industrial hand cleaner. Cured material must be removed mechanically.

Health Precautions

Wear nitrile rubber gloves and eye protection when mixing and place DAROTopp® EMS. Avoid skin & eye contact, wash completely after handling. If eye contact occurs, flush with water for 15 minutes and consult a physician. Do not take internally. Keep out of the reach of children. Refer to Safety Data Sheet for complete safety precautions.

Preparation

DAROTopp® EMS is suitable for installation on concrete on floors with RH levels up to 100% RH.

- All floors should be tested per ASTM F-2170 (Standard Moisture Test Method for Determining Relative Humidity in Concrete) before installing DAROTopp® EMS. Other methods for testing moisture, including ASTM 1-1869-11 (Calcium Chloride test), are not accepted by DARO Flooring Systems USA LLC and will not be considered for any warranty claims.
- Sources of external water infiltration that contribute to high moisture drive on slabs on or below grade should be identified and controlled prior to installing DAROTopp® EMS.
- Concrete surface must be dry prior to installing DAROTopp® EMS.
- During application and cure, maintain ambient and substrate temperatures 65 – 90°F, with a relative humidity of 30-80%. Concrete must be 5 degrees Fahrenheit or more above the dew point of the slab at the time of installation and throughout product cure.
- All concrete slabs must be structurally stable, sound, and clear of any contaminants or bond breakers prior to installing DAROTopp® EMS. Ensure all old adhesives, contaminants, curing compounds, bond breakers, oils, silicates, dust and sealers are completely removed. It is the responsibility of installer to utilize concrete core testing to identify potential use of silicates on slab, or in circumstances where alkali-silica reaction is suspected.
- After all slab repairs have been completed, mechanically prepare the concrete by shot blasting to a CSP of 3 prior to installing DAROTopp® EMS.
- Chemical preparation of the floor is not acceptable under any circumstances.
- Carefully vacuum the floor following mechanical preparation to ensure removal of dust, debris on the slab.

Leveling (application of self-leveling underlayments) should be done over the DAROTopp® EMS. If the concrete is too uneven to provide a uniform film of DAROTopp® EMS, use PrepPro RC or equal to fill any significant holes to provide a more uniform surface. After PrepPro RC has cured mechanically prepare ALL surfaces receiving DAROTopp® EMS to a CSP 3.

For instructions on how to install PrepPro RC, consult our latest technical data sheet found on our website (www.darotopp.com).

Joints / Cracks

All expansion and isolation joints must be honored when installing DAROTopp® EMS. Applying DAROTopp® EMS to concrete surfaces and “welding” control joints with the DAROTopp® EMS may lead to slab relaxation, slab curl, cracking and subsequent issues with finished flooring. DARO Flooring Systems USA LLC is not responsible for such occurrences (whether they lead to moisture intrusion or not). Where this is a concern contact Technical services prior to installation. Hairline cracks may be covered with DAROTopp® EMS, and then covered with an underlayment. Any non-moving cracks 1/8” must be filled with a high modulus epoxy before installing DAROTopp® EMS. Consider adding sand to the high modulus epoxy for wider cracks. Consult technical services prior to installing a topping over DAROTopp® EMS.

Application Procedures

FOR PROFESSIONAL USE ONLY

Use chemical resistant gloves when handling.

Mixing

Prior to mixing, ensure material is preconditioned to 65 - 75°F. Colder temps will increase material viscosity, mixing and set times. Each unit of DAROTopp® EMS comes pre-measured with 4.74 US Gal of epoxy: 3.24 US Gal of Resin (Part A) and 1.5 US Gal of hardener (Part B) in a 1 US Gal jug. After opening both containers add all of Part B into the Part A mixing container. Always mix DAROTopp® EMS as a full kit using the pre-measured quantities provided. Using a 300 RPM drill with an epoxy or paint paddle, thoroughly mix the product for at least 3 - 5 minutes to a streak free consistency. After mixing, immediately pour the entire contents on the floor in a ribbon pattern across the pre measured area when done. Do not leave mixed material in the mixing pail for more than 3 minutes after mixing.



Technical Support

Contact +1-416-432-3345

Precautions

Read and follow all precautions and warnings indicated on the product label and on the product Safety Data Sheet (SDS) available at www.darotopp.com

Limited Warranty

DARO USA, LLC warrants to the initial purchaser only that the goods sold hereunder will be free from defects in material and workmanship and, except as otherwise set forth herein, will conform to the specifications provided. If any failure to meet this warranty appears within one year from the date of shipment of the goods, on the condition that DARO USA, LLC. will correct any such failure by either replacing or repairing any defective goods, at DARO USA, LLC's option. The preceding paragraph sets forth the exclusive remedy for all claims based on failure of or defect in the goods sold hereunder, whether such failure or defect arises before or during the warranty period and whether a claim, however instituted, is based on contract, indemnity, warranty, tort (including negligence), strict liability or otherwise. The forgoing warranty is exclusive and is in lieu of all other warranties whether written, oral, implied or statutory.

Application

Prior to mixing, measure a 600 sq ft area on grade (per kit) for material application. Immediately after the mixed DAROTopp® EMS is spread in ribbon pattern across the measured area, use a straight bladed squeegee to uniformly spread the material. Back roll the applied material with a dual cage foam or solid core (fiber free) roller. Do not introduce excessive air by over rolling. Ensure DAROTopp® EMS is spread uniformly to a 12 mil thickness.

In very rare cases where concrete exhibits extreme out-gassing, contact Technical Services for instructions.

Cure Time (@ 70°F)

- 5-6 hrs tack free
- 6+ hrs to apply primer or suitable floor covering adhesives
- 36 hours max recoat window.

When ambient temperatures are high, working and set time will be reduced, when temperatures are cooler set times will lengthen, typically 2x for each 10 degree drop from 73°F.

Protect the area from foot traffic, dust and dirt until finished floor or underlayment installation is completed.

Floor and Underlayment Installation

After curing to a tack free condition, DAROTopp® EMS may receive floating floor systems without the need of further preparation. If a flooring adhesive is used, ensure the product is compatible with nonporous epoxy surfaces such as DAROTopp® EMS. A test area should always be performed prior to installing the entire floor to ensure compatibility.

For subsequent installation of an underlayment, utilize DAROTopp® MPP NEAT. Reference the primer Data sheet for installation over non-porous surfaces. After Primer MPP is applied and dry, apply a suitable DAROTopp® patch (DAROTopp® XS) or underlayment (L2, L3) to realize a full system warranty.

Limitations

DAROTopp® EMS is intended for professional use only. DAROTopp® EMS has a placement time of 20 minutes when immediately spread on the concrete, colder temperatures may extend the working time of the product. Due to the exothermic chemical reaction, Failure to immediately pour mixed DAROTopp® EMS to the substrate will significantly reduce placement time.

- DAROTopp® EMS is not for use as a final wear surface or topping and must be covered by a finished floor.
- For interior applications only
- Not for use over gypsum underlayments
- Do not chemically clean a concrete slab prior to installing DAROTopp® EMS.
- Do not apply DAROTopp® EMS to a concrete slab if adhesive was ever applied to the floor.
- MVER may fluctuate within slab areas and can have significant seasonal variations.
- Do not apply over existing coatings, sealers or floor coverings.
- Do not use in environments where temperature will exceed 100°F.
- Do not apply to concrete slabs with less than 3000 psi compressive strength and 200 psi internal tensile strength when tested per ASTM C1583.
- Concrete slabs must be at least 7 days old prior to material application.
- Terrazzo strips may move and may corrode, therefore DAROTopp® EMS is not warranted over terrazzo strips. Remove Terrazzo strips and patch damaged areas prior to application of DAROTopp® EMS.
- Conform to Building Codes and comply with the requirements of all applicable local, state and federal code jurisdictions.



*Published technical data and instructions are subject to change without notice.
Please contact DARO Flooring Systems USA LLC for the most current technical data, safety data and application instructions.*