



KOSTER VAP I[®] 2000 FAST SET (FS)

A system for the reduction of moisture vapor emission and alkalinity control

Technical guideline / Article number 6.033
Issued: August 10, 2011

Description:

The KOSTER VAP I[®] 2000 FS is a one-coat moisture vapor reduction system consisting of a unique combination of epoxy resins and other chemical compounds. KOSTER VAP I[®] 2000 FS is formulated to prevent floor failures on concrete slabs containing elevated levels of moisture vapor emission. KOSTER VAP I[®] 2000 FS has no upper limits for water vapor emissions; it resists moisture levels (100% RH) and a sustained pH of 14. KOSTER VAP I[®] 2000 FS, due to its 4 hour cure and 100% solids content, is extremely dense with a perm rating of 0.05 grains/ft²/hour in Hg⁻¹. The low perm rating makes the KOSTER VAP I[®] 2000 FS perfect as a primer for virtually all types of flooring, especially low permeance flooring, such as sheet goods and rubber tile.

KOSTER VAP I[®] 2000 FS is compliant with all state and federal VOC regulations with a VOC content of <10 g/l. KOSTER VAP I[®] 2000 FS allows installation in sensitive areas such as active hospitals, schools and grocery stores. LEED Indoor Environmental Quality Credits are available for EQ 4.2 (Low-Emitting Materials, Paints and Coatings).

Material Properties:

Pot Life:	Approx. 12 min. (Immediately empty container after mixing)
Cure Time:	4 Hours (May vary depending on temperatures)
Solid Content:	100%
VOC, mixed:	< 10 g/L
Flash Point:	>200° F
Packaging:	2.4 gallon, 0.7 gal. Combi-Pack
Storage:	Between 50°F - 90°F
Shelf Life:	1 year in original sealed container
Clean Up:	Immediately with Xylene (or similar) after use
Disposal:	Dispose of in accordance with current local, state and federal regulations. Collect with absorbent material.

ASTM E96 TEST RESULTS

CTL Group Project Number: 281166 June 25, 2009

KOSTER VAP I [®] 2000 FS	ASTM E-96 (Wet Method)
Water Vapor Transmission, grams h ⁻¹ m ⁻²	0.021
Water Vapor Transmission, lbs/1000ft ² /24 hrs	0.1
Avg. Measured Permeance, grains h ⁻¹ ft ² in Hg ⁻¹	0.05

Appropriate Application:

KOSTER VAP I[®] 2000 FS is formulated to treat new or existing concrete floors with moisture and/or alkaline conditions which prevent or compromise the installation of floor covering systems. KOSTER VAP I[®] 2000 FS may be installed on concrete with moisture vapor emissions rates over 25+ lb/24hr/1000 ft² or 100% RH. (Contact sales representative for MVE rates greater than 25 lb.) KOSTER VAP I[®] 2000 FS is unaffected by a pH of 14. KOSTER VAP I[®] 2000 FS's low permeability of 0.05 grains/1hr/ft² in Hg⁻¹ offers long term protection under VCT, sheet-vinyl, wood, rubber, epoxy, polyurethane and solid backed carpet. KOSTER VAP I[®] 2000 FS may also be used as a finished floor. Contact a sales representative or the KOSTER technical staff for finished floor limitations and details. KOSTER VAP I[®] 2000 FS has been applied on concrete slabs in offices, hospitals, schools, super-markets,

manufacturing facilities, airplane hangers, residential housing, and many other applications. KOSTER VAP I[®] 2000 FS's low odor and fast cure allow for application in occupied buildings with minimum disruption.

Underlayments/Leveling Compounds:

Cementitious underlayments/leveling or skim coatings are not required over the KOSTER VAP I[®] 2000 FS but are commonly used to smooth or level the KOSTER VAP I[®] 2000 FS coated surface in preparation for subsequent floor coverings and systems as required. The KOSTER VAP I[®] 2000 FS is not formulated to be a floor leveling product.

All underlayments, leveling or skim coats must be applied on top of the cured KOSTER VAP I[®] 2000 FS unless otherwise specified by your representative or the KOSTER American Technical staff. For proper adhesion always use an appropriate primer for non-porous surfaces, such as the KOSTER VAP I[®] 06 Primer prior to the installation of any cementitious material. Check with your sales representative or the KOSTER American Technical staff when using any other manufacturer's primers.

Do not install KOSTER VAP I[®] 2000 FS over any gypsum-based products.

Adhesives

Most flooring systems and adhesives may be applied directly to the cured KOSTER VAP I[®] 2000 FS. Adhesives must be designed and formulated for use over a *non-porous substrate*. There is no absorption of any fluid or solvents from the adhesive into the KOSTER VAP I[®] 2000 FS coated concrete. Apply adhesives to a test area to check for compatibility prior to overall application.

Adhesives containing solvents (includes water) that are not allowed to flash off prior to the flooring installation may be applied to a minimum of 1/8 inch of a cementitious underlayment. Check with the adhesive manufacturer's recommendation for installation over an underlayment and the required thickness for use as a "blotter."

Surface Preparation:

Concrete substrates to receive KOSTER VAP I[®] 2000 FS must be structurally sound, solid, absorptive and meet acceptable industry standards as defined in ACI Committee 201 Report "Guide to Durable Concrete". Surfaces must be free of adhesives, coatings, curing compounds, concrete sealers, efflorescence, dust, grease, oils and any other material or contaminant that may act as a bond breaker. Building envelope must be in place and environmentally stable prior to product application.

KOSTER American Corporation recommends older, existing concrete slabs be cored and analyzed for various contaminants such as sulfurous salts, ASR (Alkali Silica Reaction), unreacted water soluble silicates and any other deleterious compounds that may act as bond breakers. (Water soluble silicates are found in some curing compounds, floor hardeners and other vapor reduction products.) Slabs that have existing flooring failures are strongly recommended to have core samples taken to identify the failure mode or identify any deleterious constituents in the concrete. It is the owner or the owner's representative's responsibility to test the slab for contaminants. These tests are not required by KOSTER.

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Contact KOSTER American Technical staff for additional details and guidelines concerning this type of testing.

All patching, leveling materials, adhesives and old coatings must be entirely removed prior to the KOSTER VAP I® 2000 FS application. Consult with KOSTER prior to installing any underlayments underneath the KOSTER VAP I® 2000 FS.

Shot blast or mechanically prepare the substrate to an ICRI Concrete Surface Profile (CSP) of 3 - 4. Grinding is permitted only in areas inaccessible to shot blasting or for edging purposes.

Acid etching is not permitted. Upon completion of the bead blasting and grinding, the concrete slab must be vacuumed free of all dust, dirt and debris prior to the KOSTER VAP I® 2000 FS installation. Do not use sweeping compounds that may contain oil.

The concrete surface must be at least 5°F above the Dew Point temperature. Avoid application in a dew point atmosphere or when the ambient relative humidity is above 95% or the concrete surface is wet.

On projects that have experienced a flooring failure of any type, a minimum of a CSP- 4 is recommended for surface preparation.

Testing to determine the water vapor content of the substrate, either the calcium chloride tests (ASTM F-1869) or RH probe in situ tests (ASTM F- 2170) may be used.

Application Instructions:

Mix Components A and B at a ratio of 2:1 by volume. Pre-mix the A component; then pour the B component into the short-filled A component container; mixing all the while. Mix with a slow speed motor (<400 RPM) and "Jiffy-type" mixer for 3 minutes. Pour the fully mixed material onto the substrate immediately after mixing, emptying the can completely.

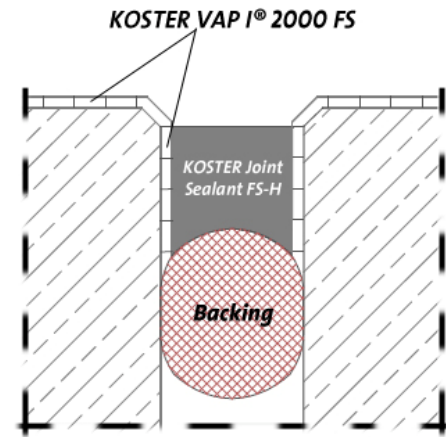
KOSTER VAP I® 2000 FS is applied in one coat using a squeegee and 3/8 inch nap epoxy rated roller. KOSTER VAP I® 2000 FS is poured from the container upon completion of mixing and spread to the appropriate coverage rates using a squeegee. The KOSTER VAP I® 2000 FS is then back rolled at right angles (90 degrees) to the squeegee application evenly distributing product across the area to be treated with no missed areas. As the KOSTER VAP I® 2000 FS is absorbed and penetrates into the surface of the concrete slab, air is displaced in the concrete capillaries resulting in "out gassing". Out gassing channels are self healed during the curing of the KOSTER VAP I® 2000 FS and do not effect performance or warranties. High points created by the displacement can be scraped, lightly sanded, or skim coated if needed to produce an acceptable level, smooth surface. Concrete surface profile, absorption rate and moisture vapor rates will determine coverage requirements; refer to coverage rate chart.

Apply KOSTER VAP I® 2000 FS at substrate and ambient temperatures between 50° to 90°F. Provide ventilation for the KOSTER VAP I® 2000 FS during application and cure time. For warranty purposes, the KOSTER VAP I® 2000 FS may only be applied by KOSTER trained and approved installers. The maximum recoat window is 14 days. Prior to the installation of any subsequent flooring system, the cured KOSTER VAP I® 2000 FS must be clean and free of all dust, dirt and debris. Sanding is not required. If the KOSTER VAP I® System is to remain uncovered for an extended period of time, contact the KOSTER American Technical Staff prior to installing floor covering systems. If installing MMA's or PMMA's, the maximum recoat window is 48 hours after KOSTER VAP I® 2000 FS has cured for 4 hours.

Treating Cracks and Expansion Joints

Cracks and voids should be completely cleaned out and repaired using KOSTER Repair Mortar or KOSTER VAP I® 2000 FS mixed with an appropriate epoxy thickening agent. Cracks on existing concrete slabs that may be contaminated should be cut out ¼ x ¼ inch to remove the contaminants from the side walls. Expansion joints must be honored using the KOSTER method detailed in this data sheet (see diagram).

Treating cracks and expansion joints with KOSTER VAP I® 2000 FS



Allow KOSTER VAP I® 2000 FS to cure a minimum of 4 hours before applying backing rod and sealant.

Suggested Coverage Rates

Spread and mil rates are approximate and may vary due to the porosity, absorption rate and surface profile (CSP) of any given concrete substrate.

Vapor Testing per ASTM F 1869 (CaCl) Protocol:

Up to 10 lbs/1000 ft²/24hr = 150 ft²/gal; approx 10 mils
10 to 15 lbs/1000 ft²/24hr = 125 ft²/gal; approx 13 mils
15 to 25 lbs/1000 ft²/24hr = 100 ft²/gal; approx 16 mils

Relative Humidity Testing per ASTM F 2170 or ASTM F 2420

Due to the disparity between the (slab) RH and the CA-CL moisture tests there is no spread rate correlation between the two test protocols. Use the following table for *approximate* spread rate guidance when using only the RH test values: Contact KOSTER Technical staff on any questions or concerns regarding product spread rates.

< 85% RH = 150 ft²/gal
85 – 90% RH = 125 ft²/gal
90 – 100% RH = 100 ft²/gal

Product may be applied to concrete 5 – 7 days after placement.

Safety Precautions:

Avoid skin and eye contact as well as prolonged exposure to vapors.

First Aid:

Eye Contact – Flush immediately with water and consult physician.
Skin Contact – Wash immediately with soap and water.

Warranties:

KOSTER warrants that its product shall be in accordance with the specifications published in the current revision of the products data sheet. KOSTER covenants that in the event any of its products fail to meet their published specifications, KOSTER shall replace those products proved to be defective. KOSTER shall not be responsible for any incidental or consequential damages due to the breach of its warranties. Notwithstanding the foregoing, KOSTER's sole liability hereunder shall not exceed the cost of the defective product originally purchased. EXCEPT AS SET FORTH ABOVE, KOSTER MAKES NO OTHER WARRANTIES EXPRESS OR IMPLIED AND MAKES NO WARRANTY AS TO THE MERCHANTABILITY OR FITNESS OF THE PRODUCT FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. The user must determine if the product is suited for the intended use and the user must bear the risks and liabilities associated with it.