



# KOSTER VAP I 2000 ULTRA FAST SET (UFS)

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

Technical guideline / Article number 6.034  
Issued: April 11, 2012

### Description:

The KOSTER VAP I 2000 UFS is a one-coat moisture vapor reduction system consisting of a unique combination of epoxy resins and other chemical compounds. KOSTER VAP I 2000 UFS is formulated to prevent floor failures on concrete slabs containing elevated levels of moisture vapor emission. KOSTER VAP I 2000 UFS has no upper limits for water vapor emissions; it resists moisture levels (100% RH) and a sustained pH of 14. KOSTER VAP I 2000 UFS, due to its 2 hour cure and 100% solids content, is extremely dense with a perm rating of 0.08 grains/ft<sup>2</sup>/hour in Hg<sup>-1</sup>. The low perm rating makes the KOSTER VAP I 2000 UFS perfect as a primer for virtually all types of flooring, especially low permeance flooring, such as sheet goods and rubber tile.

KOSTER VAP I<sup>®</sup> 2000 UFS is compliant with all state and federal VOC regulations with a VOC content of <10 g/L. KOSTER VAP I 2000 UFS 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:	2 Hours @ 70°F (May vary depending on temp.)
Solid Content:	100%
VOC, mixed:	< 10 g/L
Flash Point:	>200° F
Packaging:	2.4 gallon
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: 281252      March 10, 2011

KOSTER VAP I 2000 UFS Applied @ 16 mils, 100 ft <sup>2</sup> /gal:	ASTM E-96 (Wet Method)
Water Vapor Transmission, grams h <sup>-1</sup> m <sup>-2</sup>	0.022
Water Vapor Transmission, lbs/1000ft <sup>2</sup> /24 hrs	0.24
Avg. Measured Permeance, grains h <sup>-1</sup> ft <sup>2</sup> in Hg <sup>-1</sup>	0.08

### Appropriate Application:

KOSTER VAP I 2000 UFS 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 UFS may be installed on concrete with moisture vapor emissions rates over 25+ lb/24hr/1000 ft<sup>2</sup> or 100% RH. (Contact sales representative for MVE rates greater than 25 lb.) KOSTER VAP I 2000 UFS is unaffected by a pH of 14. It's low permeability of 0.08 grains/hr/ft<sup>2</sup> in Hg<sup>-1</sup> offers long term protection under VCT, sheet-vinyl, wood, rubber, epoxy, polyurethane and solid backed carpet.

KOSTER VAP I 2000 UFS 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 UFS is suitable for use on concrete slabs in offices, hospitals, schools, super-markets, manufacturing facilities, airplane hangers, residential housing, and many other applications. KOSTER VAP I 2000 UFS'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 UFS but are commonly used to smooth or level the KOSTER VAP I 2000 UFS coated surface in preparation for subsequent floor coverings and systems as required. The KOSTER VAP I 2000 UFS 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 UFS 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 before using any other manufacturer's primers.

**Do not install KOSTER VAP I 2000 UFS over any gypsum-based products.**

### Adhesives:

Most flooring systems and adhesives may be applied directly to the cured KOSTER VAP I 2000 UFS. 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 UFS 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 UFS 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 owner's representative's responsibility

to test the slab for contaminants. These tests are not required by KOSTER. 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 UFS application. Consult with KOSTER prior to installing any underlayments underneath the KOSTER VAP I 2000 UFS. 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 UFS 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:

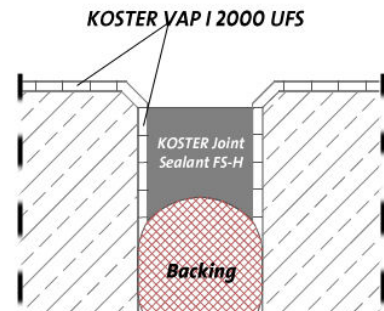
Mix Components A and B at a ratio of 2:1 by volume. Pre-mix the A component; then pour the B component into the short-filled A component container; mixing all the while. Mix with a slow speed motor (<400 RPM) and "Jiffy-type" mixer for 3 minutes. Pour the fully mixed material onto the substrate immediately after mixing, making sure to empty the container completely. KOSTER VAP I 2000 UFS is applied in one coat using a squeegee and 3/8 inch nap epoxy rated roller. KOSTER VAP I 2000 UFS is poured from the container upon completion of mixing and spread to the appropriate coverage rates using a squeegee. The KOSTER VAP I 2000 UFS 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 UFS 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 UFS 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 UFS at substrate and ambient temperatures between 50° to 90° F (10° to 32°C). Provide ventilation during application and cure time. For warranty purposes, the KOSTER VAP I 2000 UFS 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 UFS 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 VAP I 2000 UFS has cured for 2 hours (at 70°F).

### Treating Cracks and Expansion Joints

Cracks and voids should be completely cleaned out and repaired using KOSTER approved cement based repair mortars or KOSTER VAP I 2000 UFS 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 UFS



Allow KOSTER VAP I 2000 UFS 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 ft<sup>2</sup>/24hr = 150 ft<sup>2</sup>/gal; approx 10 mils  
 10 to 15 lbs/1000 ft<sup>2</sup>/24hr = 125 ft<sup>2</sup>/gal; approx 13 mils  
 15 to 25 lbs/1000 ft<sup>2</sup>/24hr = 100 ft<sup>2</sup>/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 ft<sup>2</sup>/gal  
 85 – 90% RH = 125 ft<sup>2</sup>/gal  
 90 – 100% RH = 100 ft<sup>2</sup>/gal

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

### Safety Precautions:

Avoid skin and eye contact as well as prolonged exposure to vapors. Upon eye and skin contact; flush immediately with water and consult a physician. Pour the fully mixed material onto the substrate immediately after mixing, making sure to empty the container completely. Due to its high reactivity, even smaller amounts of the material left in the container will generate intense heat when reacting and may generate smoke if left in mass.

If remaining mixed material begins to react in the container, remove the material outdoors by carrying only by the handle; avoid touching the pail. Once outdoors, stand at a safe distance and spray cool water into the pail until the material stops smoking. Dispose of material in accordance with federal, state, and local regulations.

### Warranties:

LIMITED WARRANTY: KOSTER AMERICAN CORP; ("KOSTER") warrants that its products shall be in accordance with their published specifications and covenants that, in the event any of its products fail to meet their published specifications or their published performance standards (subject to published conditions such as proper application and surface preparation), KOSTER shall only replace those products proved defective, but KOSTER shall not be responsible for consequential damages due to the breach of its warranties. Notwithstanding the foregoing, KOSTER'S liability hereunder shall not exceed the cost of the defective product originally purchased. Please refer to our KOSTER 10-year warranty for specific terms and conditions. A full flooring warranty is only available when this product is installed by a KOSTER approved applicator. THIS TECHNICAL DATA SHEET MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia, and all parties consent to jurisdiction in the courts located in the Cities of Norfolk and Virginia Beach, Virginia and agree that no other courts shall be an appropriate venue for any disputes arising out of the relationship between the Company and the Customer.