

**A SYSTEM FOR THE REDUCTION OF MOISTURE
VAPOR EMISSION AND ALKALINITY CONTROL**

Description:

The KOESTER VAP 1® 2000 is a one-coat system which consists of a unique combination of epoxy resins and other chemical substances. It is specifically formulated to overcome the poor long-term adhesion properties of most resin-based systems when curing in an environment of constant wetness, extreme alkalinity (pH 13–14) and water vapor drive. Because of its extreme density it is capable of reducing water vapor and moisture to levels acceptable for most coatings, adhesives and floor covering systems. (See Law Engineering test results.) The KOESTER VAP 1® 2000 is in full compliance with VOC regulations.

The KOESTER VAP 1® 2000 SYSTEM has excellent chemical and abrasion resistance and is compatible with most 100% solid epoxy and/or polyurethane based materials. ALWAYS TEST ADHESION PROPERTIES OF MATERIALS TO BE APPLIED ONTO VAP 1® 2000 PRIOR TO APPLICATION.

Before application of any material onto the KOESTER VAP 1® 2000 SYSTEM, allow final coating to cure for a minimum period of 12 hours. This cure time is based on proper ventilation of entire work area during and after application. (See “environmental conditions.”)

Uses:

The primary recommended use for the KOESTER VAP 1® 2000 SYSTEM is to solve the problems of alkalinity and moisture/water vapor emission through mineral-based substrates like concrete floors, floor underlayments (not containing gypsum), screeds etc., by reducing these vapors to levels that do not interfere with the adhesion of floor coverings. It provides an excellent base coat for most coatings and adhesives that cures fast and can be used indoors due to its low odor and no flammability. The KOESTER VAP 1® 2000 SYSTEM can be applied to concrete and other cement-based toppings that have been allowed to cure for a minimum period of 7 days. It is not pH sensitive in an alkaline environment. These unique properties allow the system to provide a solution as a base coat to pH/moisture/water vapor-sensitive coatings like polyurethane with regard to their long-term adhesion. It enables their application on relatively fresh cement-based substrates. Since conditions vary from job to job, it is recommended that a test area be coated and tested for water vapor transmission to assure proper performance of the system.

The KOESTER VAP 1® 2000 SYSTEM is best used in an environment protected from UV rays and extreme thermal movement of the substrate. It is not a low modulus material and therefore cannot accommodate substrate movement commonly encountered in an outdoor environment. This limitation applies specifically to cracks. Cracks have to be repaired according to manufacturer’s recommendation prior to the application of the KOESTER VAP 1® 2000 SYSTEM. (Contact manufacturer for details.) Substrate should have a minimum compressive strength of 2500 psi.

Surface Preparation:

The substrates to receive the KOESTER VAP 1® 2000 SYSTEM have to be sound, clean, ABSORPTIVE and meet acceptable industry standards as defined in ACI Committee 201 report “Guide to Durable Concrete.” Any kind of surface contamination like adhesives, coatings, curing compounds, efflorescence, dust, grease, oils, etc., have to be removed completely by sand or shot blasting to ICRI CSP 3 - 4 finish. However, for hard-trowled surfaces like aircraft hangers, blast to ICRI CSP-5. Smooth formed concrete surfaces like precast panels must be roughened if not absorptive to allow the KOESTER VAP 1® 2000 SYSTEM to penetrate. Acid etching or grinding as surface preparation is not recommended.

In the event that surfaces are very uneven or have a rough texture, the use of a leveling underlayment might be beneficial. Consult with KOESTER AMERICAN first before using underlayment / repair mortars / screeds. It is essential that these materials are suitable for the use underneath vapor-reducing systems. Test adhesion properties first before application. DO NOT apply KOESTER VAP 1® 2000 onto surfaces that have been treated with any kind of concrete sealer prior to consulting with KOESTER AMERICAN CORPORATION. First make sure that the substrate surface does not deteriorate due to the presence of alkaline silica reactive substances or sulphurous compounds encountered in certain areas. Testing for concrete deficiencies and contaminates like A.S.R. (Alkaline Silica Reaction), un-reacted silicates, organic residue etc. is the responsibility of the Building Owner, and strongly recommended by Koester to avoid product failures.

Koester American Corp. strongly advises that surfaces to be treated with Koester material be inspected and evaluated by an experienced firm prior to the application of Koester Systems to determine its suitability to receive the VAP 1® System.

ONLY a surface that REMAINS sound, clean, absorptive and free of any type of contamination is fit to receive the KOESTER VAP 1® 2000 SYSTEMS.

If self-leveling underlayments are to be used for any reason, ALWAYS APPLY KOESTER’S VAP 1® LEVEL-PRO SELF-LEVELING UNDERLAYMENT with LEVEL-PRO PRIMER E ON TOP OF KOESTER VAP 1® 2000 SYSTEMS. Consult with KOESTER AMERICAN first before using underlayments / repair mortars / and screeds. Always follow underlayment manufacturers instructions and specifications.

ASTM E96-95 TEST RESULTS

KOESTER AMERICAN CORPORATION / KOESTER COATING

Test Result	VAP 1 2000 Wet Method (See Note)	CONTROL Wet Method (See Note)
Water Vapor Transmission, grains/hr.ft2	0.20	3.35
Water Vapor Transmission, grains/m2	0.14	2.34
Water Vapor Transmission, lbs./24hr. 1000 ft.	0.69	11.48
Permeance, perms	0.53	8.81
Permeance, g/Pa.s.m2	3.03E-08	5.04E-07

Law Project Number: 50160-0-3481.01.83

April 10, 2000

Application Instructions:

Before application of the KOESTER VAP I® 2000 SYSTEM, make sure that all conditions as outlined for uses, surface preparation and mixing have been strictly adhered to.

The KOESTER VAP I® 2000 System can be applied using a squeegee and/or 3/8" nap roller application. The coverage rates for the VAP I® System depend on the surface texture and porosity of the substrate as well as the degree of moisture level. The KOESTER VAP I® 2000 SYSTEM Coat is self-leveling and has the tendency to run into low areas where it can build up. Therefore it is recommended to start with a trial area of application to determine final coverage. On average, coverage of 90 to 140 sq. ft./gal. can be expected, but can vary from project to project.

Approximate Suggested Coverages

Up to 10 lbs./1000 ft. /24h. 130 sq. ft./gal.

Up to 15 lbs./1000 ft. /24h. 100 sq. ft./gal.

Up to 25 lbs./1000 ft. /24h. 70 sq. ft./gal.

When applied onto absorptive concrete, the KOESTER VAP I® 2000 SYSTEM will penetrate deep into the voids of the substrate surface. This can result in the appearance of "outgasing" by displacing the air contained in the voids with resin. Extensive testing has shown that this "outgasing" does NOT affect the vapor performance of the system. This displacement may result in high points which can be removed with a razor scraper or very light disc sanding. Pinholes can be filled with floor adhesive or epoxy putty. All "outgasing channels" are self-sealed during curing of the system.

If this "displacement / outgasing" is of issue with the flooring installation, apply one coat of KOESTER VAP I® PRIMER at a coverage rate of 250 sq. ft./gal. and wait a minimum of 6 to 12 hours before the application of the KOESTER VAP I® 2000. After the KOESTER VAP I® 2000 has cured for a minimum of 12 hours, the subsequent flooring systems can be installed. KOESTER VAS Adhesives can be used directly onto the VAP I® 2000 and carry with them the full ten-year warranty.

Mixing:

Mix Component A and B at a rate of 2.4:1 by volume and pour onto the substrate immediately after mixing.

Material Properties:

Pot Life:	Immediately empty container after mixing
Solid Content:	100 %
VOC, Mixed (Lbs./gal.)	< 10 GR./L
Flash Point:	>200°

Packaging: 6 gallon, 2.4 gallon .72 gal. Combi-Pac

Storage: Between 50–90°F.

Shelf Life: 1 year in original sealed container

Clean Up: Immediately with Xylene after use

Disposal: Dispose of in accordance with current local, state and federal regulations. Collect with absorbent material.

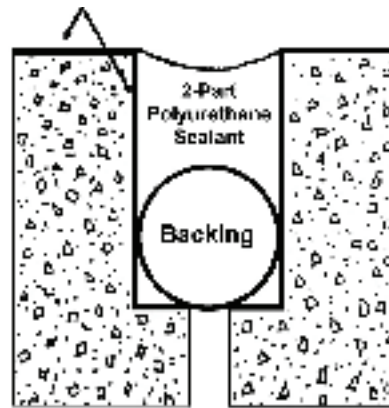
Safety Precautions:

Component A contains epoxy resins. Component b contains amines. Avoid skin and eye contact as well as prolonged exposure to vapors. Use safety goggles and chemical-resistant gloves. Ventilate work area properly. Use NOISH/MSHA approved vapor respirator.

First Aid: *Eye Contact — Flush immediately with water and consult physician*

Skin Contact — Wash immediately with soap and water

Cracks/Expansion Joints VAP I® 2000



Allow VAP I® 2000 to cure a minimum of 24 hours before applying backing and sealant

Environmental Conditions:

The KOESTER VAP I® 2000 SYSTEM must be applied at ambient and substrate temperatures between 50 and 90 degrees F. (10°C. and 32. 2°C.). The relative humidity must not exceed 80%.

IN ORDER TO AVOID ENTRAPMENT OF VOLATILE COMPONENTS USE SOLVENT /WATER-FREE ADHESIVES ONLY (100% SOLIDS). Koester VAS Adhesives are formulated for use directly over the VAP I® System to create a single source 10-year warranty. A thorough examination of all areas with the KOESTER VAP I® 2000 SYSTEM must take place prior to subsequent applications of coating or other coverings. If necessary, imperfections like pinholes, inadequate Coat thickness can be touched up with a second application of the Coating, allowing the first coat to cure for a minimum of 12 hours.

Maximum recoat time (adhesives included) is 5 days.

**KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY
READ MATERIALS SAFETY DATA SHEET
BEFORE USING
EMERGENCY RESPONSE: Infotrac 800-535-5053**

Warranties:

LIMITED WARRANTY: KOESTER AMERICAN CORPORATION ("KOESTER") 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), KOESTER shall replace those products proved defective, but KOESTER shall not be responsible for consequential damages due to the breach of its warranties. Notwithstanding the foregoing, KOESTER's liability hereunder shall not exceed one and one-half (1 1/2) times the cost of the defective product originally purchased. EXCEPT AS SET FORTH ABOVE, KOESTER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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