



VAPORTIGHT COAT - SG2

MANUAL

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Vaporproofing vs. Waterproofing

VAPORPROOFING IS PREVENTING WATER IN GAS FORM FROM PASSING THROUGH CONCRETE OR CONCRETE MASONRY.

It is defined as a moisture vapor emission rate (“vapor pressure”), measured in lb/1000 ft²/24 h

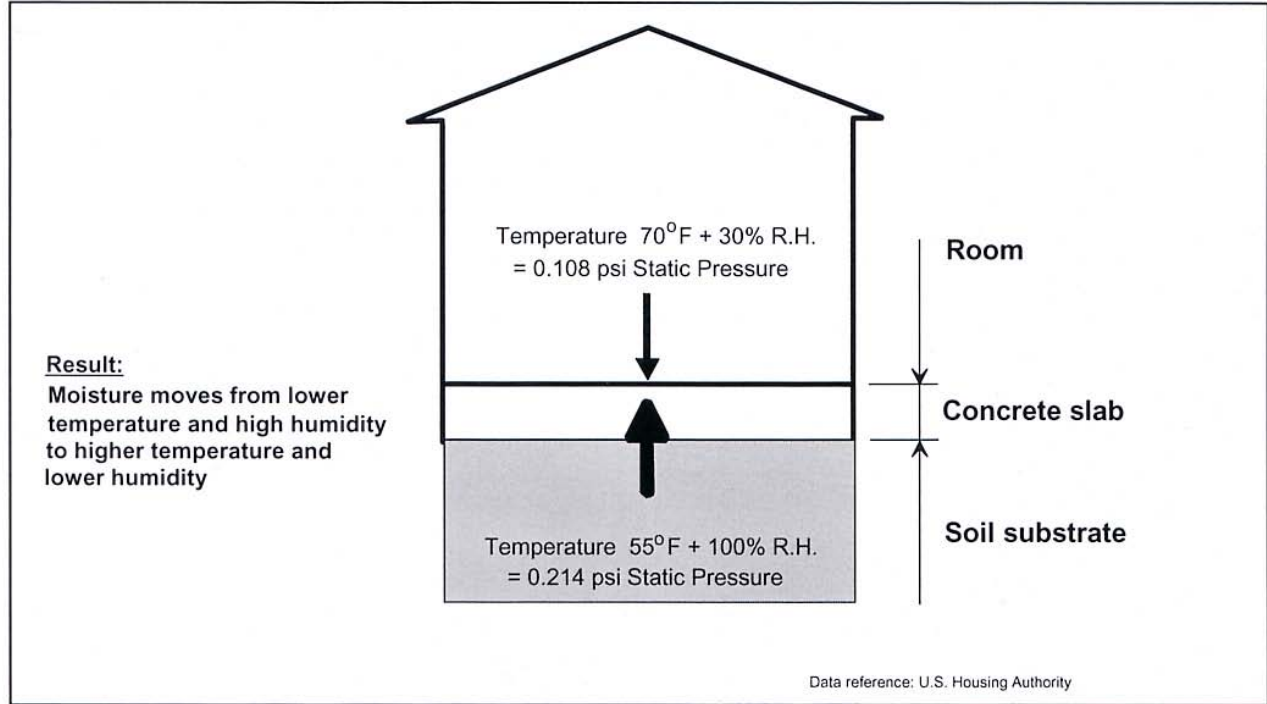
(ASTM-F 1869-98: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride).

WATERPROOFING IS PREVENTING WATER IN LIQUID FORM FROM PASSING THROUGH CONCRETE, CONCRETE MASONRY, BRICK, ETC.

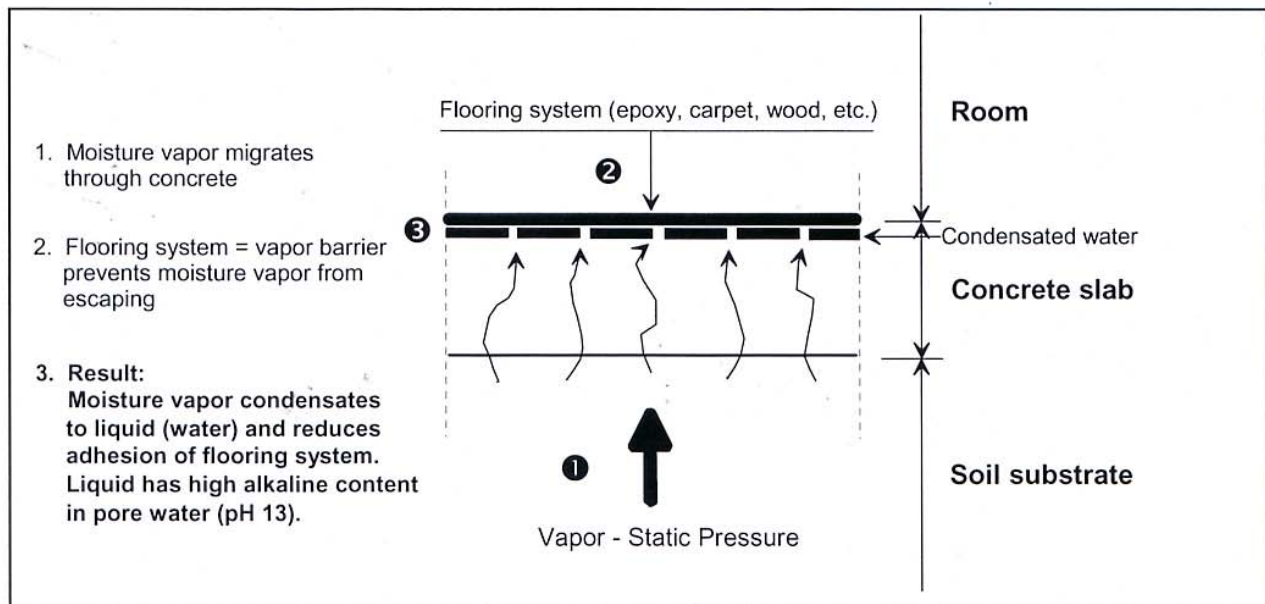
It is defined as a hydrostatic pressure, measured in psi.

I. THE EFFECT OF MOISTURE VAPOR EMISSION ON FLOORING SYSTEMS

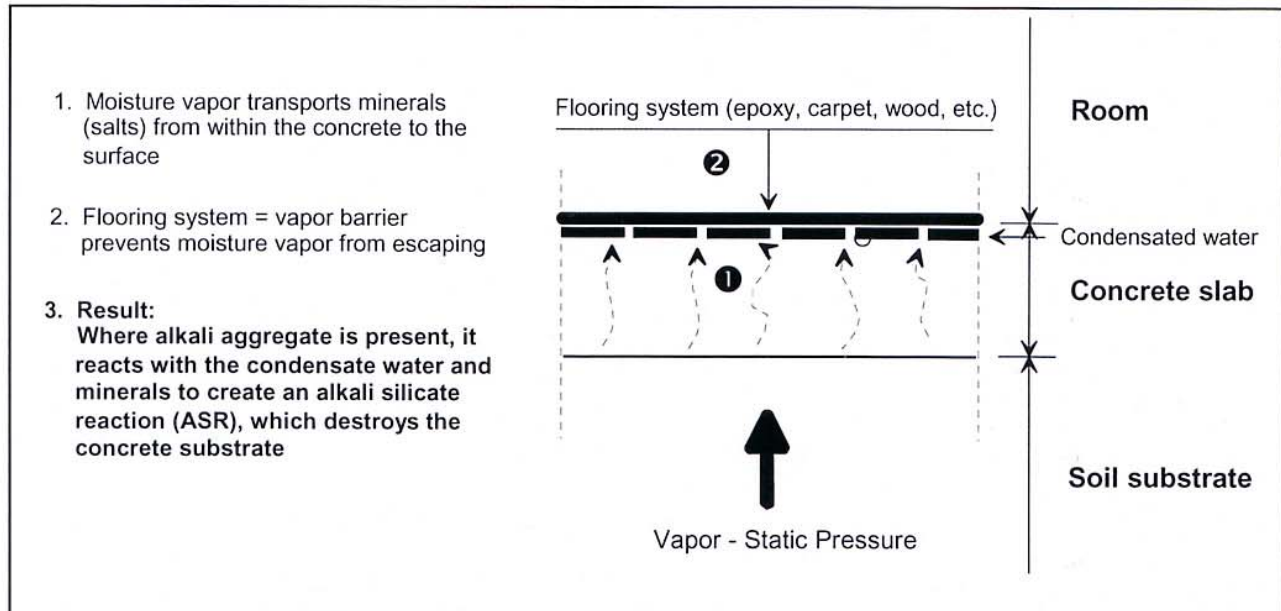
1. Moisture movement through slabs on grade in buildings



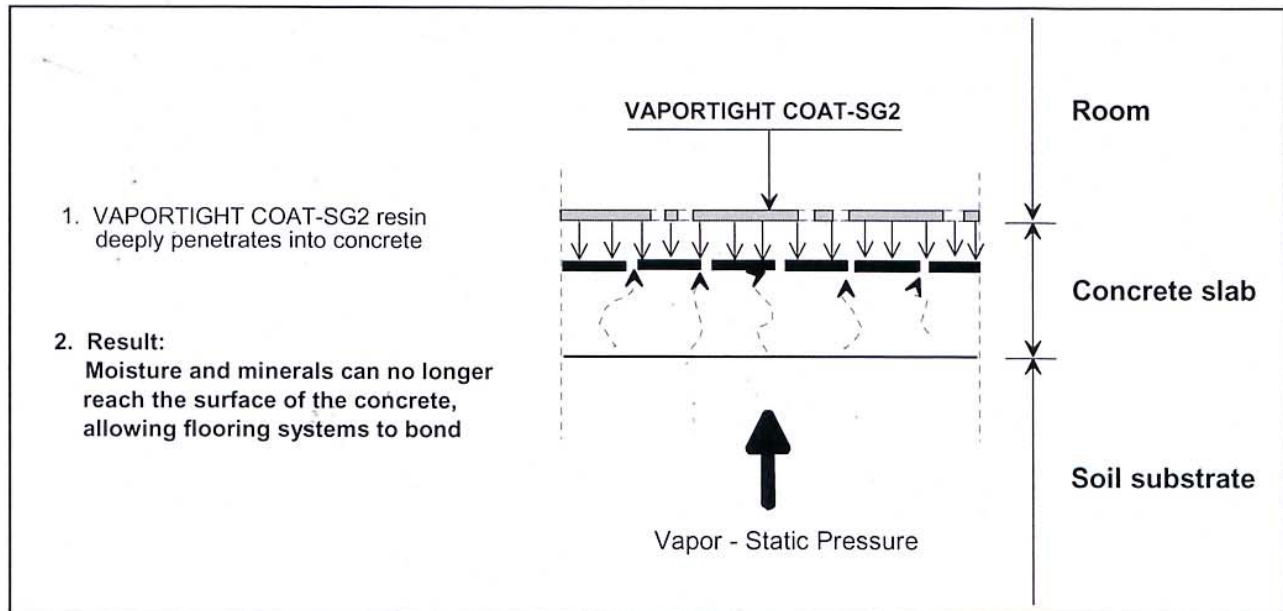
2.a Moisture emission condensates to water and adversely affects flooring system



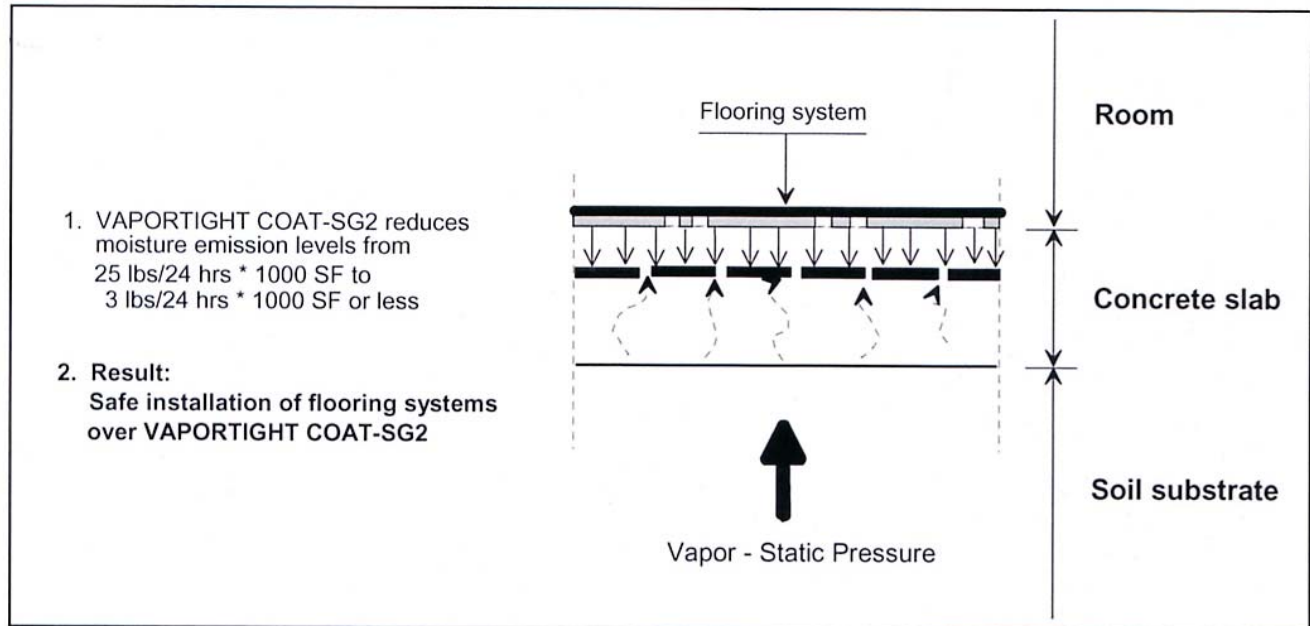
2.b Moisture emission also transports minerals (salts) through slabs on grade



3. VAPORTIGHT COAT-SG2 prevents de-bonding



4. Safe installation of flooring system over VAPORTIGHT COAT-SG2





II. Required Tools:

Surface preparation:

- Shot blast machine or alternative equipment such as scarifying, etc., depending on surface situation
- Diamond cup blade for areas to be grinded
- Water (high pressure from water tap) for cleaning surface of debris
- Air blower (to blow away water)
- Vacuum (to remove puddles)

Mixing tools:

- Screw driver
- 1/2" electric slow speed drill (300 rpm)
- Epoxy mixing paddle
- 5 gal plastic pails
- Cleaning rags
- 6 mil poly (to protect surfaces during mixing)
- Safety goggles
- Rubber gloves

Application tools:

- Chalk
- Tape measure
- Masking tape
- Spiked shoes
- Short nap paint rollers (1/4" x 8" or 18") with extension handle (minimum 2)
- Long handled scrub brushes (minimum 2)
- Paint brushes (minimum 2) for detailing of joints





III. Application/Installation Steps - Checklist:

A. Floors

Surface preparation:

- | | Done | |
|--|--------------------------|--------------------------|
| | Yes | No |
| 1. Shot blast substrate | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Check slab surface with the water drop method (see "SG2" data sheet) | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Repair cracks | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Rinse/clean slab with water - leave no puddles | <input type="checkbox"/> | <input type="checkbox"/> |

Mixing:

Material should be minimum 60°F (15°C)

- | | |
|--|--------------------------|
| <input type="checkbox"/> | |
| 1. Break black plastic seal on container and remove tightening ring | <input type="checkbox"/> |
| 2. Pierce a hole through the top and bottom of Part B container with a long screw driver | <input type="checkbox"/> |
| 3. Assure that Part B completely drains into Part A container | <input type="checkbox"/> |
| 4. Remove Part B container | <input type="checkbox"/> |
| 5. Stir mixture in Part A container with an electric mixer | <input type="checkbox"/> |
| • Use a slow speed drill (approx. 300 rpm) with a PS Jiffy blade | |
| • Stir for approx. 5 minutes to a homogenous, streak free consistency | |
| • Avoid any action that may entrap air | |
| • Ensure that the material at the pail bottom and sides are agitated | |
| • Do not alter mixing ratios | |
| • Do not thin | |
| 6. Pour mixed material into a clean container and carefully mix it once more (30 sec) | <input type="checkbox"/> |

Installation:

Slab temperature must be minimum 50°F (10°C)

Surface should be moist/damp

- | | |
|---|--------------------------|
| <input type="checkbox"/> | |
| 1. Mark areas for 1 unit coverage (application rate as per data sheet) | <input type="checkbox"/> |
| 2. Pour mixed "SG2" from container over surface | |
| a. Step 1: Spread "SG2" around with a soft squeegee or 1/4" short nap roller | <input type="checkbox"/> |
| b. Step 2: Scrub "SG2" into surface pores with long handled scrub brush | <input type="checkbox"/> |
| c. Step 3: Backroll "SG2" to uniform surface appearance | <input type="checkbox"/> |
| d. Step 4: Broadcast #20 sand to rejection (full broadcast) immediately | <input type="checkbox"/> |
| Note: Step 4: if a smooth surface is desired (omitting sand), the "SG2" must be mechanically roughened, and the entire area wiped clean with MEK. | <input type="checkbox"/> |
| 3. Seal joints and cracks (refer to Application Guideline No. 5.1.1-1) while applying "SG2" | <input type="checkbox"/> |

Note: "SG2" can not be sprayed.

Curing:

Curing temperature must be minimum 46°F (8°C)

Application observed by: _____

Date: _____

Name:



IV. Guideline No. 5.1.1-3

ASTM F 1869-98: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

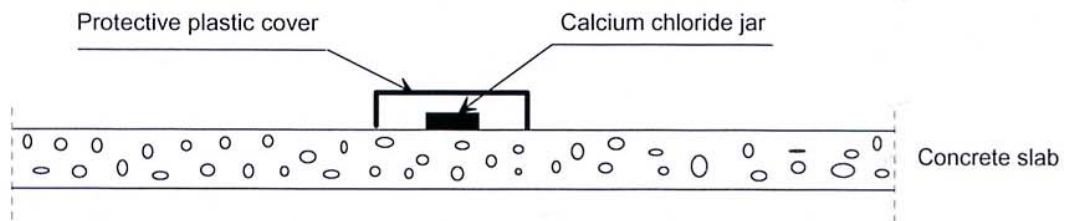
Item 7.7: Use the following guidelines to determine the number of test locations to be utilized simultaneously:

7.7.1: Three test locations for areas up to 1000 ft² (100 m²).

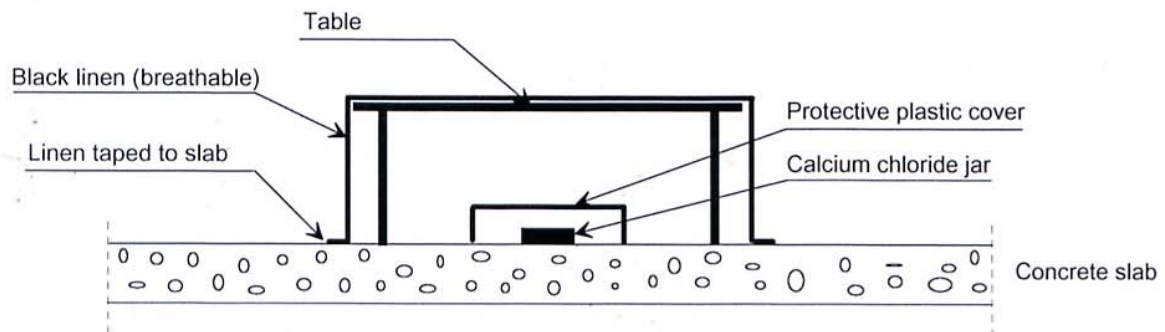
7.7.2: Add one additional test for each 1000 ft² (100 m²) or fraction thereof.

Recommended test kits: Calcium Chloride Moisture Test Kit #625 as manufactured by Taylor Tools 11075 E. 47th Ave. Denver, CO 80239 phone 303.371.7667 fax 303.371.7669 <http://www.taylorstools.com> or equal.

A. Test procedure for Indoor Applications



B. Test procedure for Outdoor Applications ASTM F 1869-98 modified



Note: In case of inclement weather, test installation must be protected with an open tent during test time.



V. Guideline No. 5.1.1-4

PROCEDURE FOR WALL APPLICATIONS

1. Surface preparation:

- a. Concrete surface must be clean, sound and have an "open"/absorptive surface ("tooth and suction) for mechanical bond.
- b. Use sand blasting or high pressure water blasting to achieve a fine papery surface.
- c. Pre-dampen surface with clean water to SSD (saturated surface dry) condition.

2. Application:

a. Wall surface:

Step 1: Mix and apply "SG2" with short nap roller. Apply in a one coat, multiple pass application. Do not let "SG2" set-up between passes.

Step 2: Scrub "SG2" well into bugholes with a scrub brush or stiff masonry brush.

b. Bug holes:

After initial "SG2" surface application, mix "SG2" to a trowelable consistency as follows:

i. Bug holes up to 1/6" (4 mm) depth:

Mixing ratio "SG2" to #20 or #22 silica sand = 1:2.5 by weight
= 33 lb (1 kit) "SG2" + 80 lb sand

ii. Bug holes larger than 1/6" (> 4 mm) depth:

Mixing ratio "SG2" to #20 or #22 silica sand = 1:3 by weight
= 33 lb (1 kit) "SG2" + 100 lb sand

- 2.1 gal kit "SG2" yields approximately 6 gal when mixed (extended) with sand.
- Use GS #20 or #22 silica sand from U.S. Silica Company (Columbia, SC plant), or similar. Provide product data sheet to the Aquafin office for approval before starting the application.
- Add sand while "SG2" is under agitation to achieve desired consistency.
- Above mixing ratios are theoretical at 62°F (15°C) concrete and material temperature. They can change due to variation of temperature and gradation of sand. A test application must be carried out before mixing a whole or partial "SG2" kit.

c. Application of "SG2 Trowel Mix":

Step 1: Allow "SG2" wall application to set until dry to the touch (up to 2 hrs depending on environmental conditions), then fill bugholes with the sand extended "SG2" mix flush to surface using a trowel.

If desired, another pass with a roller can be carried out over the whole application, as long as product has not set.





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VI. Guideline No. 5.1.1-5

CHEMICAL RESISTANCE OF VAPORTIGHT COAT®-SG2				
Chemical	short term Exposure	medium - limited Exposure	high - long term Exposure	Not recommended
	Contact duration < 8 h **)	Contact duration between 8 h and 72 h	Contact duration between 72 h and 3 Months	
Acetic Acid 10%			•	
Acetone				•
Alcohol (<48% Methanol)		•		
Aliphatic aldehydes			•	
Amines			•	
Ammonia - aqueous <32%			•	
Ammonium thiosulfate <10% *)		•		
Aromatic esters & ketones			•	
Jet Fuel		•		
Benzene & benzene containing mixtures			•	
Caustic soda lye			•	
Chromic acid < 25%			•	
Crude oil			•	
Diesel			•	
EDTA acid <10% *)		•		
Engine oil & transmission fluid - used			•	
Esters - organic		•		
Ethylene glycol 100%		•		
Gasoline			•	
Glycerine <10% *)		•		
Glycol ether			•	
Halogenated hydrocarbons => C ₂			•	
Heating oil			•	
Hydrochloric acid 37%			•	
Hydrochloric acid 100%		•		
Hydrofloric acid				•
Ketones		•		
Lye - inorganic				•
Methanol 100%	•			
Motor oil			•	
Natriumhypochlorite (active chlorine content < 12%)			•	
N-Methylpyrrolidone <10% *)		•		
Organic acids (Carbon acids) excluding formic acid				•
Oxidizing agents like H ₂ O ₂ (hydrogen peroxide)				•
Phosphoric acid < 85%			•	
Salt water			•	
Sodium carbonate <10%*)			•	
Sodium metabisulfate <10% *)		•		
Sodium sulfite <10% *)		•		
Sodium thiosulfate <10% *)		•		
Solutions of organic acids <10%			•	
Solutions of inorganic, non oxidizing salts with pH 6			•	
Sulphuric acid < 50%			•	

Note: *) = at 70°F (20°C). Chemicals coming in contact with VAPORTIGHT COAT-SG2 can discolor SG2 on the surface. However, this does not affect the performance of SG2.
**) = surface of SG2 must be inspected after contact with listed chemical.





VII. VAPORTIGHT COAT-SG2 suitability for use in meat, poultry and other food processing plants

TO WHOM IT MAY CONCERN

We confirm that AQUAFIN VAPORTIGHT COAT-SG2 is suitable for use as a coating for slabs, walls and ceiling applications in meat, poultry and other food processing plants. It will not result in adulteration of food products if used and applied as intended or indicated on the label directions.

AQUAFIN VAPORTIGHT COAT-SG2 will perform well under a daily regimen of rigorous cleaning, cyclical temperature change, and wet conditions. It is impervious to moisture and has a light solid color (white) that will not obscure detection of debris or unsanitary conditions.

AQUAFIN VAPORTIGHT COAT-SG2 contains no known carcinogens, mutagens and teratogens classified as hazardous substances, heavy metals or other toxic substances. It is not considered a pesticide and does not have pesticidal characteristics.



VIII. Example Sand Properties of a #20 Sand



PRODUCT DATA

COLUMBIA GROUT SAND SERIES

PLANT: COLUMBIA, SOUTH CAROLINA

Target Particle Size Analysis and Properties

(These do not represent a specification.)

USA Standard Sieve Size	GS #16	GS #18	GS #20	GS #22	GS #30	GS #40
	Individual % Retained					
8 <i>mm</i> ¹						
10	3					
12 <i>1.7</i>	25	<1				
16 <i>1.18</i>	71	54	<1			
20 <i>0.85</i>	<1	41	45	<1	<1	
30 <i>0.60</i>	<1	4	50	69	4	<1
40 <i>0.425</i>		<1	3	31	17	17
50 <i>0.30</i>			1	<1	32	32
70 <i>0.212</i>			1		24	28
100 <i>0.15</i>					14	16
140 <i>0.106</i>					7	6
200 <i>0.09</i>					1	1
270 <i>0.075</i>					<1	<1
AFS* Grain Fineness	9	11	16	23	50	51
Color.....	White		Shape..... Angular			
Mineral.....	Quartz		Specific Gravity..... 2.65			
pH.....	5.5 to 6.5					
SiO ₂ (Silicon Dioxide).....	99.6%		MgO (Magnesium Oxide)..... <0.01%			
Fe ₂ O ₃ (Iron Oxide).....	0.02%		Na ₂ O (Sodium Oxide)..... <0.01%			
Al ₂ O ₃ (Aluminum Oxide).....	0.2%		K ₂ O (Potassium Oxide)..... <0.01%			
TiO ₂ (Titanium Dioxide).....	0.02%		LOI (Loss on Ignition)..... 0.12%			
CaO (Calcium Oxide).....	<0.01%					

* American Foundrymen's Society



IX. Adhesives used under various flooring systems

(02/17/02)

The following adhesives have been successfully used under the listed flooring systems in combination with VAPORTIGHT COAT-SG2. *This list is not intended to be complete or exclusive.* Please contact our technical department if you want to use a product that is not listed.

1. Carpet:

Installation steps:

1. Shot blast concrete surface
2. Install SG2 as per data sheet, with or without sand broad casting, depending on product
3. Buff (scratch) and solvent wipe SG2 surface after 12 - 16 hrs (at 73°F) if no broad-cast
4. Install a cementitious underlayment or "flash patch" (minimum 1/8") as necessary for surface evenness
5. Apply carpet adhesive and carpet as per manufacturer's recommendations

Manufacturer	Product Name	Description
Mapei	G19	Universal, two-component polyurethane adhesive Note: requires sand broad-cast in fresh SG2
	ECO 185 ¹⁾	Solvent-free, high-tack, carpet adhesive
	MACH 6 ¹⁾	Solvent-free, quick-grabbing, carpet adhesive
Parabond	M-4600 ¹⁾	Solvent-free vinyl backed floor covering adhesive for PVC backed carpet, carpet tile, and homogeneous sheet vinyl (vinyl backed)
Shaw Industries	1000	Fast tacking, solvent free adhesive

¹⁾ Check with our office before use.

2.) Linoleum, sheet vinyl & conductive tile flooring:

Note: Installation of a cementitious underlayment over SG2 before applying a linoleum adhesive is required.

Installation steps:

1. Shot blast concrete surface
2. Install SG2 as per data sheet with sand broad-cast
3. Install a cementitious underlayment (minimum 1/8")
4. Apply adhesive and linoleum as per manufacturer's recommendations

Manufacturer	Product Name	Description
Forbo	L 910	Linoleum adhesive
	C 920	Vinyl adhesive
	C 930	Conductive adhesive





3.) Vinyl Composition Tile (VCT):

Installation steps:

1. Shot blast concrete surface
2. Install SG2 as per data sheet. Broadcasting sand is optional
3. Buff (scratch) and solvent wipe SG2 surface after 12 - 16 hrs (at 73°F)
4. Install a cementitious underlayment or "flash patch" (minimum 1/8") as necessary
5. Apply tile adhesive and VCT as per manufacturer's recommendations

Manufacturer	Product Name	Description
Armstrong	S-515	Clear Thin Spread Tile Adhesive Use a cementitious underlayment for flash patching
Congoleum	3044	Water base adhesive
Mapei	ECO 600	Solvent-free fast-setting black thin spread adhesive
	ECO 710	Solvent-free transparent self stick adhesive Note: both adhesives require bonding onto Mapei PLANIPATCH cementitious underlayment before installation of VCT
Parabond	M-4600	Solvent-free vinyl backed floor covering adhesive

4.) Wood flooring:

Installation steps:

1. Shot blast concrete surface
2. Install SG2 as per data sheet with sand broad-cast
3. Repair/patch or level surfaces, if necessary, with portland cement based materials
4. Apply adhesive and wood flooring as per manufacturer's recommendations

Manufacturer	Product Name	Description
Bostik's	Bostik's Best	Wood flooring urethane adhesive

5.) Polyurethane & epoxy adhesives (reactive adhesives):

Installation steps:

1. Shot blast concrete surface
2. Install SG2 as per data sheet with sand broad-cast
3. Install polyurethane or epoxy adhesives as per manufacturer's recommendations

Manufacturer	Product Name	Description
Mannington	V-85	2-component PU
Mapei	G19	2-component PU





X. Underlayments

(02/17/02)

The following portland cement based underlayments have been successfully used over SG2 during the past years. *This list is not intended to be complete or exclusive.*

Ardex	Ardex K-15
Dependable	Skimflow ES, Skimcrete XL
Mapei	Planipatch, Ultraplan M20
Maxxon	Level-Right Plus, Level-Right FS-10

XI. Various flooring & coating systems

(02/17/02)

The following flooring & coating systems have been successfully used over SG2 or endorsed by the flooring manufacturer. *This list is not intended to be complete or exclusive.*

1. Resinous flooring:

Atlas Minerals & Chemicals:	Chempruf Tie-Coat
Dur-A-Flex	Various systems
General Polymers	Epoxy Terrazzo
PolyMax	
Polymerica	Epoxy Terrazzo
3M (MMM)	Static Control (ESD) Flooring Systems
Sherwin Williams	Various coatings
Steelcote Manufacturing Co.	Epo-Line 161
Tamms	Duraltex, Dural 350
Tnemec	Various coatings

2. Synthetic flooring:

Freudenberg	Norament 825 with PU 310
Mondo	Various systems with PU 100

3. Waterproofing membrane:

C.I.M. Industries:	CIM 1061, CIM 1000
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