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Technical Datasheet

VAPORTIGHT COAT®-SG2

Oil & Water Vapor Barrier Coating

CSI Div. 07 + 09
07 14 16 Cold Fluid-Applied Waterproofing
07 26 00 Vapor Retarders
09 91 33 Primers
09 96 56 Epoxy Coatings

LEED Points:
IEQ Credit 4.2, Low-Emitting Materials, Paints & Coatings: 1 Point
Using this AQUAFIN product can help contribute to LEED certification of projects in the categories shown above.

Product Description:
VAPORTIGHT COAT®-SG2 is a unique 2-component, alkali resistant, moisture tolerant, extremely high density and chemically enhanced epoxy based product which prevents capillary infiltration of oil and other chemicals from the ground. Applied in one coat, VAPORTIGHT COAT®-SG2 reduces the passage of water vapor and moisture through slabs and walls, thus eliminating delamination of adhesives, floor coverings and coatings.

Typical Applications:
- Indoor and outdoor, new and existing concrete slabs: on grade, above grade, below grade and split slabs.
- Oil and other chemically contaminated slabs.
- Elevator pits.
- Industrial/retail facilities, office buildings, hospitals and schools, food processing plants, secondary containment slabs, etc.
- Below grade waterproofing (consult Aquafin Technical Department).

Advantages:
- Low VOC and meets USDA/FSIS guidelines
- High chemical and alkalinity (pH 14) resistance
- Can be used as a barrier against radon & other gases
- Excellent adhesion to steel
- Compatible with most traffic bearing membranes, deck coatings, roofing systems, and flooring systems
- Minimal downtime - traffic bearing membranes, deck coatings, roofing systems, and flooring systems installed next day
- Does not support mold growth
- Protects non-breathable floor coverings/coatings from water vapor transmission through concrete substrates.
- Full broadcast system - provides excellent substrate for bonding
- Seals oil contaminated slabs
- For slabs with MVER up to 25 lbs and RH up to 100%
- Can be applied to 5 day old concrete and damp concrete slabs
- Withstands negative side water pressure. Tested up to 100 feet hydrostatic pressure.

Testing Concrete Slabs for Contaminants:
Aquafin recommends testing slabs with unknown history, as well as slabs with previous failures of traffic bearing membranes, deck coatings, roofing systems, flooring systems, etc. for contaminants (i.e. hydrocarbons, other organic compounds, un-reacted water soluble meta silicates, chlorides, ASR, Sulfurous compounds, etc.) to determine suitability of VAPORTIGHT COAT®-SG2. Provide Ion Chromatography and IR Spectroscopy, and where necessary ASR data to Aquafin before commencing application. A separation screed may be required. See Separation Screed section for more information.

Physical and Technical Data	
Material	2-component epoxy
Color:	White
Density:	14.66 lbs/gal (1.76 kg/L)
VOC:	47 g/L
Volume Solids	97.3 %
Flash Point: Part A Part B	>212°F (>100°C) 170°F (77°C)
Mixing Ratio:	100:12 (by weight)
Pot Life @ 73°F (23°C)	~60 Minutes
Open to Foot Traffic at 73°F (23°C):	after 12 hrs
Application Temperature:	min. 45°F (8°C) – max. 95°F (35°C)
Curing Temperature:	min. 45°F (8°C)
Full Strength at 73°F (23°C):	after 7 days
Compressive Strength: (DIN EN 196-1)	>11,000 psi (>80 MPa)
Flexural Strength: (DIN EN 196-1)	>4,300 psi (>30 MPa)
Adhesion to Concrete: (ASTM D-7234)	>480 psi (>3.3 MPa) @ 60 days Failure in substrate
Temperature Resistance:	Continuous Exposure: • *Dry heat: 140°F (60°C)* • *Humid heat: 113°F (45°C)* Intermittent Exposure: • *High pressure water: 185°F (85°C);* • *248°F briefly (120°C)* • *Dry heat 140°F (60°C)*
Permeability +/- side water head: (DIN EN 12390-8)	No water ingress with: 100 ft (30 m) (3 bar) hydrostatic pressure.

All data are average values obtained under laboratory conditions. In practical use temperature, humidity and absorbance of the substrate may influence the above given values.

Concrete Moisture Testing:
Aquafin recommends moisture testing of all concrete slabs. However,

moisture testing is only a guideline and can be influenced by environmental factors.

- Interior Concrete Slabs: Aquafin recommends testing to determine moisture vapor emission rate (MVER) including "Anhydrous Calcium Chloride" testing as per ASTM F 1869-11 on slabs to be treated, to determine the MVER in lb/1000 ft² • 24 hrs (grams/m² • hr) and to determine RH content (%) as per ASTM F 2170.
- Exterior Concrete Slabs: To obtain an approximate measurement of the moisture in exterior concrete slabs, Aquafin recommends using a combination of in-situ RH content (%) testing and surface MC (%) testing and then comparing the results.

Substrate Preparation:

- Concrete must be a minimum 5 days old or have reached a minimum 2,500 psi (17 MPa) compressive strength, to be treated with VAPORTIGHT COAT®-SG2. Concrete must be clean, sound and have an "open"/absorptive surface ("tooth and suction"). All concrete must be mechanically prepared (i.e. Steel shot blast) to a concrete surface profile (CSP) 3 – 5 per the International Concrete Repair Institute (ICRI) Guideline No. 310-2R-2013. *Acid etching is not allowed, broom finish on new concrete is not acceptable.* Burn off any reinforcing fibers and vacuum remains.
- After mechanical preparation, check the porosity of the concrete surface using the water drop test method (ASTM F3191). Beading water drops signal a non-absorptive condition. Additional profiling will be necessary until all contaminants are removed, and the water drop test verifies an absorptive, porous concrete surface. If additional profiling does not remedy the non-absorptive condition, contact Aquafin's Technical Department.
  Note: Concrete core sample analysis can be very beneficial in this scenario, as it will pinpoint the depth of contaminants in the concrete and estimate how much of the surface will need to be removed to achieve the requirement of a contaminant-free, porous concrete surface.

Mock-up:

Aquafin recommends installation of a field sample of min. 100 ft² at the project site or other pre-selected area as agreed to by owner's representative and applicator.

- Apply all materials to field sample area in the correct layering sequence. Include all layers and materials that will be used in the application (screeds, patching compounds, membranes, coatings, roof systems, underlayments, adhesives, flooring, etc.). Follow all manufacturer's written instructions.
- Maintain field sample during construction for workmanship comparison. Use field sample as standard for judging aesthetics on remainder of project. Do not alter, move, or destroy field sample until work is completed and approved by owner's representative.
- Mock-ups are also recommended for adhesion testing to confirm compatibility with all materials being used in the application, and also to better define recoat times based on actual jobsite conditions.

Crack and Joint Treatment:

Pre-treat all saw cut joints, expansion joints, and cracks 1/8" and wider. Refer to drawings on page 4 for saw cut joint and expansion joint treatment.

- Cracks 1/8" and Wider: Fill cracks 1/8" and wider with VAPORTIGHT COAT®-SG2 mixed with 5 parts by volume of oven-dried sand. Apply the VAPORTIGHT COAT®-SG2 field coat over crack areas as soon as VAPORTIGHT COAT®-SG2 with sand mixture has reached its initial set.
- Cracks Less Than 1/8" Wide: Fill cracks less than 1/8" wide with VAPORTIGHT COAT®-SG2 neat.

Separation Screed:

Concrete floors which contain water soluble, unreacted sodium and/or potassium silicates or chlorides cannot be coated when certain thresholds of these compounds are exceeded. If these soluble mediums have deeper penetration into the substrate than standard steel shot blasting will remove, it will be required to remove 3/8" - 1/2" (10 mm - 13 mm) of the concrete surface and replace it with a separation screed, such as MORTAR-Screed CI, to prevent substrate failure when trapped rising moisture activates these mediums. VAPORTIGHT COAT®-SG2 will then be applied over the separation screed. All separation screed surfaces must be mechanically prepared like a concrete surface (CSP 3 - 5) as indicated above.

Oil contaminated slabs:

Citrus based degreasing agents are recommended for hydrocarbon contaminated slabs containing low to medium amounts of oil. If the IR analysis reveals high concentrations of hydrocarbons, then microbial remediation is required. *We strongly recommend carrying out a test application of VAPORTIGHT COAT®-SG2 for both remediation processes, prior to installation of VAPORTIGHT COAT®-SG2.*

- De-greasing: After steel shot blasting, treat surface with a de-greasing cleaning agent by the "Detergent Scrubbing" method as outlined in ICRI Guideline No. 310.2R-2013. Multiple cleaning cycles may be required. Dispose of the oily wastewater in accordance with federal, state and local regulations.
- Microbial remediation: Follow microbial product manufacturer's instructions regarding application of microbes or "bugs".

Finish the de-greasing or microbial remediation cleaning process with high-pressure water blasting (minimum 2,500 psi). It is important that the surface of the concrete continuously remains damp/moist (without standing water), right up until the application of VAPORTIGHT COAT®-SG2. If not, oil can rise up from the concrete and prevent VAPORTIGHT COAT®-SG2 from bonding.

Elevator Pit Walls and Slabs for Radon Gas, or similar remediations:

Note: Elevator Pit Projects require pre-approval from Aquafin Technical Services prior to application of VAPORTIGHT COAT®-SG2.

1. Apply the first coat of VAPORTIGHT COAT®-SG2.
2. Apply the second coat of VAPORTIGHT COAT®-SG2 "fresh-in-fresh" (green-on-green) as soon as the first coat has adhered and is firm enough to receive the second coat without displacement. Check the mil thickness of the second coat and each subsequent coat using a wet film gauge.
3. Repeat with additional coats of VAPORTIGHT COAT®-SG2 as needed to meet the required total mil thickness.

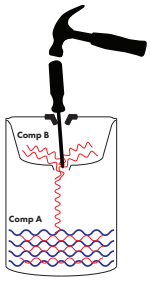
Note: Elevator pit applications do not require a sand broadcast.

Mixing:

VAPORTIGHT COAT®-SG2 is supplied in the appropriate mixing ratio (Comp-A = resin, Comp-B = hardener). Always mix full units:

- Use chemical resistant gloves and goggles when mixing or applying VAPORTIGHT COAT®-SG2.
- Epoxy-based coatings are temperature sensitive and care should be taken to condition all components to between 65°F to 75°F (18°C to 24°C) prior to mixing and placement.

1. Pierce a hole through the rubber membrane in the lid and continue through the bottom of "lid well". Assure that Part B completely drains into Part A.
2. Stir mixture for approx. 5 minutes to a homogenous,



streak free consistency, using a slow speed drill (approx. 300 rpm) with a PS Jiffy blade. Avoid entrapping air. Ensure that the material at the bottom and sides are scraped and thoroughly mixed.
3. Pour mixed material from the mixing container into another, clean container and carefully mix for additional 30 seconds.

Application:
Read all instructions thoroughly prior to installation.
- Substrate and ambient temperatures must be at least 45°F (8°C) and rising and no higher than 95°F (35°C).
- All exterior applications must be protected from strong sun light, wind, and rain until fully cured.
- All interior applications must be protected from drafts to avoid "skinning over" before sand broadcast.
- Application equipment needed: clean mixing containers, soft-edge notched squeegee, non-shed synthetic roller, long handled scrub brush.

1. All surfaces must be saturated surface dry (SSD) with no standing water.
2. Pour VAPORTIGHT COAT®-SG2 in sufficient quantity over the area to be treated ensuring proper mil thickness is achieved (refer to "Application Rates" chart) and uniformly distribute with a 3/16" to 1/4" (4.5 mm to 6 mm) notched squeegee or non-shed 3/8" nap roller to the SSD substrate.
3. Carefully scrub material into the substrate with a long-handled scrub brush.
4. Follow with a non-shed roller to achieve uniform coverage. Always verify that the proper mil thickness has been achieved by measuring the coating using a wet film gauge. VAPORTIGHT COAT®-SG2 should be checked in every corner, the center area of the room, plus random spot checks. Large areas will require several check points for every 1,000ft² of coating.
5. Immediately (within 2 minutes) broadcast clean, oven dried #20 - 50 silica sand (ASTM E11 No. 18 - 35 sieve size [0.5 - 1.0 mm dia.]) to "rejection" (full broadcast), or at a rate up to 30 - 50 lb/100ft² (1.5 kg/m²) into the fresh (wet) VAPORTIGHT COAT®-SG2.

Curing:
- Allow to cure for minimum 12 hours [based on 73°F (23°C)].

Notes: Mix VAPORTIGHT COAT®-SG2 with VAPORTIGHT COAT ACCELERATOR when faster curing times are desired. Refer to VAPORTIGHT COAT ACCELERATOR Technical Data Sheet for more information.
- Remove excess sand by sweeping, vacuuming, and compressed air.
- Coatings Systems over VAPORTIGHT COAT®-SG2: VAPORTIGHT COAT®-SG2 provides a suitable substrate for many different types of coating systems, including but not limited to: interior floor coatings, interior/exterior pedestrian traffic coatings, vehicle traffic membranes, and roof coating systems. Due to the sand broadcast top layer, there are no maximum recoat times for VAPORTIGHT COAT®-SG2 if kept covered and clean until the application of the subsequent coating. For additional guidelines of coating system applications over VAPORTIGHT COAT®-SG2, please visit our Vaportight Coat Website at: https://vaportightcoat.com/ .
- Finished Flooring Systems over VAPORTIGHT COAT®-SG2: VAPORTIGHT COAT®-SG2 provides a suitable substrate for many different types of flooring systems, including but not limited to: broadloom carpet and carpet tile, resilient tile [LVP (luxury vinyl plank), LVT (luxury vinyl tile), rubber tile, and VCT (vinyl composition tile)], ceramic, natural stone and porcelain tile, floating floors [engineered wood, laminate and WPC (wood plastic composite)], glue-down wood flooring [bamboo, engineered wood, and solid wood], and resilient sheet flooring (rolled rubber and sheet vinyl). Due to irregularities inherent in the sand broadcast layer, all installations of VAPORTIGHT COAT®-SG2 should be followed by an application of cementitious self-leveling underlayment, such as Aquafin LEVEL-One EZ prior to the installation of any flooring system. No primer is needed when LEVEL-One EZ is applied over the sand broadcast layer of VAPORTIGHT COAT®-SG2, and there are no minimum recoat times for VAPORTIGHT COAT®-SG2 if kept covered and clean until the application of LEVEL-One EZ. For additional guidelines of flooring system applications over VAPORTIGHT COAT®-SG2, please visit our Vaportight Coat Website at: https://vaportightcoat.com/ .
- Outdoor Running Tracks and Specialty Sports Surfaces over VAPORTIGHT COAT®-SG2: Refer to the manufacturer of the running track and sports flooring system for approval and recommendations.
- Underlayments over VAPORTIGHT COAT®-SG2: If other brands of cementitious self-leveling underlayments are to be used, start by first priming over the sand broadcast layer of VAPORTIGHT COAT®-SG2 with the manufacturer's own primer. Refer to the manufacturer of the cementitious self-leveling underlayment for approval and recommendations. Ensure that the manufacturer's own primer can be used over epoxy vapor barriers.

Clean-up:
EQUIPMENT: Immediately clean all equipment and tools with mineral spirits. Cured material can only be removed mechanically.
MATERIAL: Collect with absorbent material. Flush area with water. Dispose of in accordance with local, state and federal disposal regulations.

Packaging & Shelf Life:
Shelf life is 2 years in closed, original packaging, stored in a dry, cool place. Components A and B are delivered at a predetermined mixing ratio. Available in the following kit sizes:
- 0.24 gal (special order only)
- 2.2 gal

NOTE: Sand aggregate is sold separately and is not included in kits.

Limitations:
- Do not spray apply VAPORTIGHT COAT®-SG2.
- Do not apply a subsequent membrane, coating, roofing system, flooring system, etc. if VAPORTIGHT COAT® SG2 surface is wet due to dew point or other causes.
- Post-cracking of the concrete, slab warping or warping relaxation at joints or cracks after installation of the VAPORTIGHT COAT®-SG2 may cause a breach in the coating and void warranty.
- Do not apply over gypsum based substrates.
- Do not apply over curing agents.
- Do not alter mixing ratios, thin, or mix with Cab-O-Sil.
- Call Aquafin Technical Department for slabs with floor heating systems or installation recommendations for any substrates and conditions not listed.
- VAPORTIGHT COAT® SG2 must be covered with a final protective system (i.e. traffic bearing membrane, deck coating, roofing system, flooring system etc.) and is not designed to be left permanently exposed, except in applications not subject to foot traffic such as elevator pits. Contact Aquafin Technical for guidance on any applications to be left exposed.

Note:
Proper use is the responsibility of the applicator. Applicators are expected to know and follow industry standards. Site visits by Aquafin personnel or representatives are solely for the purpose of making technical recommendations, not for providing supervision or quality control. This product is not sold to the Do-it-Yourself market. **For Professional Use Only.**

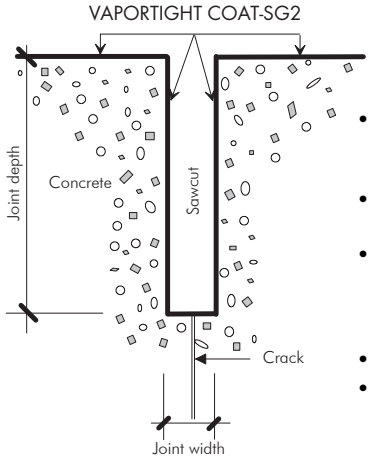
VAPORTIGHT COAT®-SG2

General Information:
All details in particular to the suggestions for the processing and use of the product is based on our present knowledge and experiences at the time of printing. Depending on specific applications, in particular regarding substrates, processing and environmental conditions may affect the final results.

Safety: Refer to SDS. For commercial use only.
Part A - irritant; sensitizer - contains epoxy resins.
Part B - corrosive; sensitizer - contains amines.
Avoid contact with skin and eyes and prolonged inhalation. Wear chemical resistant gloves and safety goggles. After contact with skin, wash immediately with water and soap and rinse thoroughly. In case of eye contact, rinse opened eye for several minutes under running water and immediately seek medical advice. After inhalation supply fresh air and call doctor for safety reasons. Use NIOSH/ MSHA approved vapor respirator in poorly ventilated areas.
KEEP OUT OF REACH OF CHILDREN.
Spills: Ventilate area. Contain and collect spillage with noncombustible, absorbent materials (i.e. sand, vermiculite, universal binders, sawdust, etc.) and place in container for disposal. Emergency procedures are not required. Dispose of in accordance with current local, state and federal regulations. VOC limit: This product is well below the allowable EPA limits as stated in 40 CFR Part 59.

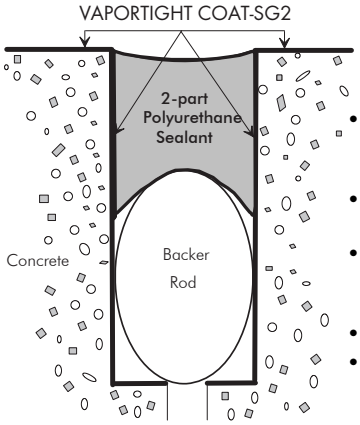
PLEASE NOTE: Standard Warranty is a one-year limited product warranty that is limited to replacement of VAPORTIGHT COAT product.
LIMITED WARRANTY: AQUAFIN, INC. warrants its products to be manufactured free of defects for one year and to be consistent with its standard high quality. We will replace or, at our election, refund the purchase price of, any product which is proven to be defective, provided that the product was properly applied. Our product recommendations are based on Industry Standards and testing procedures. We assume no warranties either written, expressed or implied as to any specific methods of application or use of the product. We do not guarantee compatibility of Aquafin products with other brands. For this reason, we strongly recommend application of a sample area at the jobsite to help determine suitability with other products. AQUAFIN, INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. AQUAFIN, INC. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay. Contact Aquafin for information on extended warranties.

Sealing Saw Cut Joints in Concrete Slabs:



- Coat slab surface with VAPORTIGHT COAT®-SG2 as per specifications.
- Coat sidewalls and bottom of cavity with VAPORTIGHT COAT®-SG2.
- Fill cavity with a joint filler recommended by the manufacturer of the subsequent membrane, coating, roof system, flooring system, etc.
- Touch-up slab surface if necessary.
- Proceed with the next step in the installation.

Sealing of Expansion Joints in Concrete Slabs:



- Coat slab surface with VAPORTIGHT COAT®-SG2 as per specifications.
- Coat sidewalls and bottom of cavity with SG2.
- Allow VAPORTIGHT COAT®-SG2 to cure for min. 12 hrs at 73°F (23°C).
- Install backer rod.
- Fill cavity with a suitable polyurethane sealant or as specified by the A/E.
- Proceed with the next step in the installation.

VAPORTIGHT COAT-SG2 Application Rates per ASTM F-1869 (CaCl) & F-2170 or ASTM F-2420 (RH - Relative Humidity):

Moisture vapor emission rate (MVER): listed by lbs/1000 ft² * 24hrs	RH: listed by percentage (%)	No. of coats	Application Rate			Approx. Thickness		Approx. Yield per 2.2 gal kit (8.5 L)	
			ft²/gal	(m²/L)	(kg/m²)	mils	mm	ft²	m²
up to 25 lbs MVER	up to 100%	1	75	1.84	1.00	21	0.50	160	15.0
Radon gas barrier		2	65	1.60	1.12	24	0.60	143	13.3
Elevator pit walls		3	50	1.23	1.46	21	0.50	105	9.7
Oil contaminated slabs		1	75	1.84	1.00	21	0.50	160	15.0
New concrete (min. 5 days old or min. 2500 psi)		1	75	1.84	1.00	21	0.50	160	15.0

Notes: Application rates and yield values are approximate. Actual coverage may vary due to absorption of substrate. Coverage rates for wall applications include a waste factor due to expected loss of material. Failure to achieve the required mil thickness will compromise the effectiveness of the product and void the warranty. It is the applicator's responsibility to verify that the required mil thickness has been attained. Mils are based on WFT (wet film thickness).

Sample Water Vapor Transmission Reduction Test : ASTM E 96-95, Test carried out by independent laboratory (wet method)

Water Vapor Transmission:	BEFORE: Untreated Control	AFTER: VAPORTIGHT COAT®-SG2	REDUCTION %
• **lbs/1000 ft² * 24 hours**	**19.24**	Average of 6 samples: **1.03**	**95**
• grams/m² * hour	3.91	0.21	
Permeance: • perms	15.54	0.83	95
• grams/Pa*s*m²	8.89×10^{-07}	4.76×10^{-08}	

Check our website for the latest version of the Technical Datasheet. Only the current version is legally binding - and only for the intended market. In cases of uncertainty contact our technical department for further information before starting any applications.