



TECHNICAL DATA- 4099

Moisture Vapor Barrier

PRODUCT DESCRIPTION:

4099 is a two component 100% solids epoxy seal coat that can help control moisture vapor emission rates up to 20 lb/24hr/1000 ft², prior to application of Vinyl sheets, Tiles, Cementitious overlays, Terrazo, Wood veneers, Carpet or polymeric coating systems. The product meets the ASTM F3010 product requirements for vapor permeance at the recommended thickness.

RECOMMENDED FOR:

Recommended for indoor horizontal concrete.

SOLIDS BY WEIGHT:

100% (+/- 1%)

SOLIDS BY VOLUME:

100% (+/- 1%)

VOLATILE ORGANIC CONTENT:

zero

COLORS AVAILABLE:

Clear- gardner color 1-3

RECOMMENDED FILM THICKNESS:

17 mils

COVERAGE PER GALLON:

94.4 square feet per gallon @ 17 mils

PACKAGING INFORMATION:

3 gallon kit (volume approximate)

15 gallon kits (volume approximate)

MIX RATIO:

9.25 pounds (1 gallon) part A to 4.15 pounds (0.50 gallons) part B (volumes approx.)

SHELF LIFE:

1 year in unopened containers

ADHESION:

350 psi @ elcometer (concrete failure, no delamination)

VISCOSITY:

Mixed= 500-1000 cps (typical)

DOT CLASSIFICATIONS:

Part A "not regulated"

Part B "CORROSIVE LIQUID N.O.S., 8, UN1760, PGIII"

HARDNESS:

Shore D= 75-80

CURE SCHEDULE:

pot life (150 gram mass)..... 28-38 minutes @ 70°F

tack free (dry to touch.....)..... 6 - 10 hours @ 70 °F

recoat or topcoat.....12-16 hours @ 70°F

full cure (heavy traffic)... 3-7 days @ 70°F

APPLICATION TEMPERATURE:

60-90 degrees F with relative humidity below 90%.

PRIMER:

None Recommended

TOPCOAT:

Various topcoat products and systems can be used.

LIMITATIONS:

*Color stability may be affected by environmental conditions such as high humidity, chemical exposure or certain types of lighting.

*Product color may vary from batch to batch.

*This product is not UV color stable.

*Substrate temperatures must be 5°F above dew point.

*For best results, apply with a high quality roller.

*All new concrete must be cured for at least 10 days prior to application with a minimum compressive strength of 3,500 psi and a minimum tensile strength of 200 psi.

* Testing must be performed to confirm a moisture vapor emission rate below 20 lb/24hr/1000 ft² per ASTM F1869 or between 75% and 95% for ASTM F2170.

*Surface must be durable, clean, free of laitance with a surface profile minimum of CSP3 as per the International Concrete Repair Institute.

*Do not expose this product to water until fully cured.

*Product is not suitable for preventing hydrostatic or osmotic water conditions.

*Manufacturer is not responsible for entrapped moisture and/or water underneath applied coatings with a low rate of water vapor transmission which can deteriorate concrete resulting in a cohesive failure within the concrete surface.

Product will not prevent failures from insufficient surface preparation, improper applications, alkaline silica reaction (ASR), ionic compounds or soluble salts in the concrete..

*Manufacturer is not responsible for failures caused by cracks and pin holes or damage caused by use. Cracks and joints are not covered by any warranty.

*Product is not warranted for any products not recommended by or manufactured by the vapor barrier manufacturer.

*Any un-reacted alkaline silicate compounds within the concrete can result in osmotic action/water vapor transmission that will channel these water soluble compounds to the surface where they can effectively break the bond of the applied system as well as preventing penetration of the coating into the substrate.

*Any claim of warrant breach, must be provided to the manufacturer in writing within thirty days of the discovery of a breach of warranty.

In the event of any breach of warranty, customers sole and exclusive remedy shall be replacement or repair of materials actually damaged (i.e., affected areas only)

No warrant shall cover any application that does not follow the surface preparation, mixing, application and covering recommendations and procedures.

*slabs must be at least 4" thick with a functioning vapor barrier.

*Manufacturer does not warrant penetration and bond where cores are not tested unless and until project owner submits cores and lab establishes that no impediment to bond or penetration is or was present.

*Physical properties are typical values and not specifications.

*See page 3 for limitations of our liability and warranty.

MIXING AND APPLICATION INSTRUCTIONS (4099)

- 1) **PRODUCT STORAGE:** Store product at 65⁰F to 85⁰F for at least 48 hours prior to use.
- 2) **SURFACE PREPARATION:** Do not apply over Gypsum compounds or light weight concrete. The concrete must meet acceptable industry standards as defined in ACI committee 201 report "Guide to Durable Concrete" Perform Vapor testing per ASTM F1869 to verify that the vapor pressure is below 20 lb/24hr/1000 ft² or above 75% and below 95% per ASTM F2170. The ASTM F1869 may only be used where HVAC is on 24x7 at least on week before and during tests. For moisture testing, at least one test shall be performed for each 1000 square feet of floor surface to be treated. All dirt, foreign contaminants, sealing compounds, oil, solvent, paint, wax, grease, residual adhesives, curing compounds, silicate penetrating compounds, salts, efflorescence, mold, mildew, laitance or any other foreign materials that can affect the adhesion must be removed before surface preparation to assure a trouble free bond to the substrate. Surface depressions or surface irregularities shall be filled smooth and surface cracks, grooves or other non-moving control joints shall be filled before application of the membrane and after the surface preparation has been performed. Cracks and voids should be cleaned out using a wire brush and vacuumed. Narrow cracks may need to be widened to a ¼ inch depth and width with an angle grinder and the sides should be primed with the vapor barrier coating before filling by troweling a mix of the mixed vapor barrier liquids and a thickening agent, (making a paste like consistency) into the cracks. Cracks that are very narrow, can be flooded with the vapor barrier coating when the material is applied. The most suitable surface preparation would be a shot blast to provide a suitable profile to a minimum CSP #3 per ICRI Guidelines. The concrete substrate shall be smooth to prevent irregularities in application thicknesses. Allow concrete substrate to dry for 16-24 hours after surface preparation. We recommend that a mockup installation for the moisture mitigation system of a minimum 100 ft² using the same methods and equipment that will be used for the entire installation be applied and tested for tensile bond strength to the concrete following test method D7234. The results must equal or exceed 200 psi with failure in the concrete before proceeding. For applications over 5,000 square feet, core samples and additional testing can be evaluated, such as X-ray diffraction mineralogical analysis, infrared spectroscopy analysis, ion chromatography analysis and petrographic analysis. These additional tests can give an indication as to the condition of the concrete and degree of contamination (if any), before installation. After surface preparation and while applying the membrane, coat the vertical edges of the clean and sound expansion joint and allow to dry prior to installing the expansion joint material. All dynamic, moving joints and cracks must be honored through the entire flooring system applied and filled with an elastomeric material that is suited for the general conditions of use. The joint must be installed so that the joint runs through the entire flooring system to be applied. Use of a backer rod material is employed in joints such that adequate depth in the joint is maintained for the applied joint filling. Inadequate surface preparation can result in leaving contaminants resulting in pin holes, bubbles, fish eyes or other deficiencies that can cause disbonding or coating failure.
- 3) **PRODUCT MIXING:** This product has a mix ratio of 9.25# part A to 4.15# part B. Standard packages are in pre-measured kits and should be mixed as supplied in the kit. We highly recommend that the kits not be broken down unless suitable weighing equipment is available. Mix each individual component before using. After the two parts are combined, mix well with slow speed mixing equipment such as a jiffy mixer until the material is thoroughly mixed and streak free. Avoid whipping air into the liquids. After mixing, transfer the mixed material to another pail (the transfer pail) and again remix before applying to the concrete substrate. Improper mixing may result in product failure.
- 4) **PRODUCT APPLICATION:** The mixed material can be applied by brush or roller. However, the material can also be applied by a suitable serrated squeegee and then back rolled as long as the appropriate thickness recommendations are maintained. When applying by serrated squeegee, back roll the material at a right angle to the direction of the squeegee application. Maintain temperatures and relative humidity within the recommended ranges during the application and curing process. Do not use any heating equipment that would produce carbon dioxide. When rolling out the product, it is best to roll out the product in one direction and then back roll the material in the opposite direction to make sure it is worked into the concrete well. If concrete conditions or over aggressive mixing causes air entrapment, then an air release roller tool should be used prior to the coating tacking off to remove the air entrapped in the coating. When the mixed material is applied to the concrete surface, pin holes or voids may develop when air is displaced (outgassing). If voids or pin holes occur, re-application to remove them must be undertaken

Grind these areas and clean off residue; make sure the surface is dry and re-coat. In severe cases, when recoating will not correct the pin hole problem, then the pin holes or voids must be filled by troweling a mix of the mixed

MIXING AND APPLICATION INSTRUCTIONS (NP409)

vapor barrier liquids and a thickening agent, (making a paste like consistency) into the pin holes or voids. The moisture vapor barrier must be applied to form a continuous monolithic void free application. Thinner applications than recommended may result in insufficient moisture vapor protection.

5) **COATING OR COVERING THE MOISTURE VAPOR BARRIER:** For proper adhesion, use a product or primer suitable for application over a non-porous surface when applying to the moisture vapor product. The application of the minimum 100 ft² mock up using the same methods and equipment that will be used for the entire installation should be thoroughly inspected to determine that product compatibility and adhesion of the entire system is sufficient for the intended use of the area. Concerning the Moisture vapor barrier coating, do not apply any coatings, overlays, or other surfacing before the material is properly set up. This is typically about 12-16 hours at 70°F. Keep in mind that cooler temperatures or a colder substrate might need additional curing time. Usually, the degree of cure is sufficient when you can firmly press down on the coating with your thumb and leave no marking. The maximum recoat window for the moisture vapor coating is 48 hours.

6) **CLEANUP:** Use xylol

7) **FLOOR CLEANING:** Caution! Some cleaners may affect the color of the floor system installed. Test each cleaner in a small area, utilizing your cleaning technique. If no ill effects are noted, you can continue to clean with the product and process tested.

8) **RESTRICTIONS:** Restrict the use of the floor to light traffic and non-harsh chemicals until the coating is fully cured (see technical data under full cure). It is best to let the floor remain dry for the full cure cycle. Dependent on actual complete system application, surface may be slippery, especially when wet or contaminated; keep surface clean and dry.

NOTICE TO BUYER: DISCLAIMER OF WARRANTIES AND LIMITATIONS ON OUR LIABILITY

*We warrant that our products are manufactured to strict quality assurance specifications and that the information supplied by us is accurate to the best of our knowledge. Such information supplied about our products is not a representation or a warranty. It is supplied on the condition that you shall make your own tests to determine the suitability of our product for you particular purpose. Any use or application other than recommended herein is the sole responsibility of the user. Listed physical properties are typical and should not be construed as specifications. **NO WARRANTY IS MADE, EXPRESSED, OR IMPLIED, REGARDING SUCH OTHER INFORMATION, THE DATA ON WHICH IT IS BASED, OR THE RESULTS YOU WILL OBTAIN FROM ITS USE. NO WARRANTY IS MADE, EXPRESSED OR IMPLIED, THAT OUR PRODUCT SHALL BE MERCHANTABLE OR THAT OUR PRODUCT SHALL BE FIT FOR ANY PARTICULAR PURPOSE. NO WARRANTY IS MADE THAT THE USE OF SUCH INFORMATION OR OUR PRODUCT WILL NOT INFRINGE UPON ANY PATENT.** We shall have no liability for incidental or consequential damages, direct or indirect. Our liability is limited to the net selling price of our product or the replacement of our product, at our option. Acceptance of delivery of our product means that you have accepted the terms of this warranty whether or not purchase orders or other documents state terms that vary from this warranty. No representative is authorized to make any representation or warranty or assume any other liability on our behalf with any sales of our products. Our products contain chemicals that may **CAUSE SERIOUS PHYSICAL INJURY. BEFORE USING, READ THE MATERIAL SAFETY DATA SHEET AND FOLLOW THE PRECAUTIONS TO PREVENT BODILY HARM.***