

Why Test for Slab Moisture / pH



Floor covering materials can be sensitive to concrete slab moisture emission volume and elevated pH levels.

Floors or coatings which are adhered directly to concrete slabs may be subject to failure, if moisture and pH levels exceed product tolerances over time.



Epoxy coatings are also very sensitive to these conditions and can create bubbles or blisters that are unsightly, or render a dangerous walking surface.

Moisture and pH tests can not prevent a failure, but can help identify the potential for it.



Patching compounds, like floors and coatings, can also have problems with moisture and pH conditions.

Always check the manufactures specifications for moisture and pH for all floor products.



A serious side effect of trapped moisture under a floor is a high sustained humidity.

High humidity (generally 70% or more) against a construction product can result in mold growth like that seen here in the center of this photograph following the removal of the floor covering.



Mold problems, like this infested carpet, will result in a wide range of unspecific, but dangerous health problems in people.

If mild is encountered anytime, stop the job immediately and call for professional help

Conducting the Moisture Test

1 - Plan Your Test Carefully

Before you test, make sure you have basic tools for cleaning the slab, including a scraper and wire brush. Make sure you have a quality gram scale and a proper supply of test kits and protective cones. **Ensure building climate is between 65 & 85 degrees Fahrenheit with relative humidity between 40-60% for at least 48 hours prior to, and during testing.**

2 - Prepare Your Test Site(s)

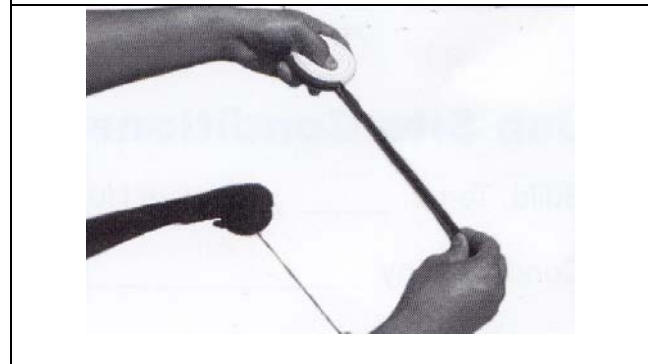
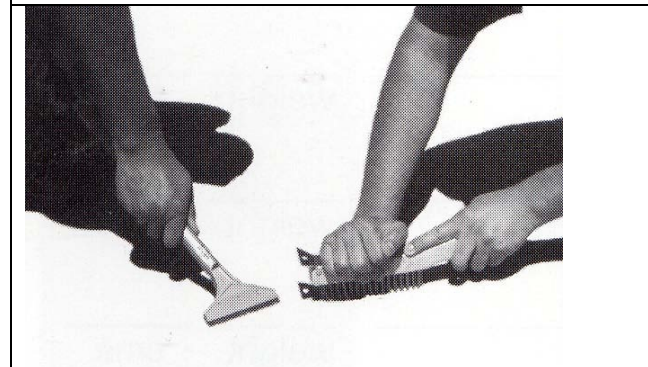
The slab must be clean of debris and adhesive residue. Shot blast surface or wire-brush slab clean. Remove dust thoroughly. Do not use chemicals of any kind to clean the floor. Avoid test locations near cracks or joints, or in direct sunlight. **Prepare 3 test sites for the first 1,000 sq. ft. and include 1 more test for each additional 1,000 square foot area.**

3 - Record Starting Values

Read the warning label on package and then open the container bag. **Set the entire tape-sealed dish on the gram scale and record its weight** on the dish lid and on the test kit booklet. **Record the starting date and time as well.** Ensure that the same scale will be available for re-weighing the dish, or the validity of this test will be compromised.

4 - Carefully Open Container

Remove the blue vinyl tape from the dish. Be careful not to lose the tape as you will need it to reseal the dish later. Store the dish lid carefully and stick the tape along the side of the plastic dome to keep it safe. Some people prefer to tape the dish's lid to the inside of the dome where it can be read through the top. **Do not touch or spill the calcium chloride.**





Ground Zero Electrostatics CONDUCTING THE MOISTURE TEST

Instructions for conducting the pH test are included in the separate pH test kit package.

5 - Place the Test Kit

Place the open dish on the slab making sure the calcium chloride inside is fairly level.

Do not set the kit directly over a control joint or crack. Remove the white over the dish. The only moisture absorbed by the calcium chloride must be within the 70 square inch area of the dome that is in contact with the concrete slab.

6 - Seal the Dome to Slab

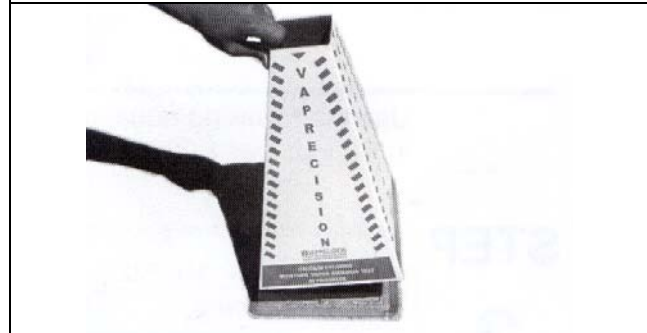
Using the handle of your wire brush or other tool, firmly squash the gasket under the flanges of the dome. The ideal installation will seat the outer flange of the dome to the slab. Then the gasket material will move to line up with the inside edge of the dome. Place your hand over the dome and gently apply pressure. **There should be no leaks in the gasket.**

7 -Expose the Test Properly

Place the optional safety cone over the dome **and let the test remain undistributed for 60 to 72 hours.** Most manufacturers of flooring products recommend at least one kit per 1,000 per square feet. The test only measures a small area of slab surface and moisture levels can vary greatly over 1,000 sq. ft. Test several areas whenever possible.

8 - Terminate Test & Calculate

After 60 to 72 hours, cut open the dome and carefully retrieve the dish. Replace the lid and seal it back up with the blue tape. **Weigh the dish again on the same gram scale.** Record the ending weight, date and time on the dish lid as well as on the test kit booklet. Follow the instructions in this booklet to compute the moisture vapor emission rate.



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Calculating Results

Use this worksheet to calculate the test results.

STEP 1	Record dates and times this test was conducted. Start Time Start Date Stop Time Stop Date Total Hours Minimum 60 Hours Maximum 72 Hours
STEP 2	Record the start and stop weight to 1/10th of a gram. Subtract the start weight from the stop weight to determine gain. ____ Grams STOP Weight Subtract ____ Grams ____ Grams START Weight Weight Gain
STEP 3	Use the following equation to determine the vapor emission volume in Pounds per 1,000 square feet in 24 hours. See footnote. Equation to determine vapor emission in pounds. $\frac{\text{Weight Gain} \times 118.932}{\text{Total Hours}} = \text{Pounds}$ Numeric example with a 4.5 gain in 64.5 hours. Always round to the nearest tenth. $\frac{4.5 \times 118.932}{64.5} = 8.3$ $\frac{\text{Weight Gain} \times 118.932}{\text{Total Hours}} =$ Pounds per 1,000 square feet in 24 hours

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The Vaprecision anhydrous calcium chloride test kit conforms to the American Society for Testing & Materials documentation ASTM E-1907-97 & ASTM F-1869-98 and is actually pictured in the ASTM E-1907 specification. ASTM documents are the copyright property of ASTM, and can be purchased easily from their web site at www.astm.org.

Footnote: The formula above complies to ASTM documentation as of 8/99 and deducts the area of the calcium chloride dish in contact with the slab. There is debate regarding this issue. To calculate





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Recording Multiple Test Sites

Location	Starting		Ending		POUNDS	pH
1. _____	weight	time	weight	time	_____	_____
2. _____	weight	time	weight	time	_____	_____
3. _____	weight	time	weight	time	_____	_____
4. _____	weight	time	weight	time	_____	_____
5. _____	weight	time	weight	time	_____	_____
6. _____	weight	time	weight	time	_____	_____
7. _____	weight	time	weight	time	_____	_____
8. _____	weight	time	weight	time	_____	_____
9. _____	weight	time	weight	time	_____	_____
10. _____	weight	time	weight	time	_____	_____
11. _____	weight	time	weight	time	_____	_____
12. _____	weight	time	weight	time	_____	_____
1. _____	weight	time	weight	time	_____	_____
1. _____	weight	time	weight	time	_____	_____

Job Site Conditions

Build. Temp. _____ Relative Humidity _____ % Date ____ / ____ / ____

Conducted by _____

Notes



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