

TB #71 Determining Moisture Content of Concrete Through Field Testing

The allowable moisture content of concrete prior to the application of sealant or coating materials is 5.0% or less on elevated slabs and 12.0% or less when applying to on-grade slabs. The moisture content of concrete can be determined utilizing the methods listed below:

Rubber Mat Test

The following (mat) test is to indicate the presence of capillary moisture in concrete per ASTM D4263. This is considered a qualitative test method.

1. Purpose:
Capillary moisture in concrete is detrimental to the adhesion and performance of polyurethane deck coatings which can not tolerate moisture on or within the surface boundary.
2. Materials:
4 mil (minimum) polyethylene sheet or rubber mat 2" duct tape.
3. Conditions:
Test when surface and ambient temperatures are within the recommended application temperature for the coating system.
4. Procedure:
Tape polyethylene sheet or rubber mat approximately 12"x 12" to the deck surface making certain all edges are sealed.

Allow the polyethylene sheet or rubber mat to remain in place for 16 hours (minimum).

After 16 hours, remove the polyethylene sheet or rubber mat and observe the underside of the mat and the concrete surface.

Slight amounts of moisture are normal and are to be expected. Actual beads of water indicate the concrete is too wet for moisture sensitive coatings to be applied.

Internal Humidity Testing of Concrete

- Humidity measured inside a drilled hole.
- Test Method ASTM F 2170 (Quantitative test method)
- Max 75-80% internal RH considered acceptable for floor coverings.
- Comparable to ~ 5% moisture level

If the concrete is at 5.0% moisture content, it will neither absorb nor desorb moisture if the air above it is 70° F (21° C) and 75 percent RH. Therefore, if the air inside the box measures less than 75 percent, it can be assumed that the moisture content of the concrete is less than 5 percent

Sensor availability:

Wagner Electronic Products, Inc. ·
326 Pine Grove Rd. Rogue River
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<http://www.wagnermeters.com/product-category/rapid-rh-and-concrete-moisture-products/>

