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TEST # 110

MOISTUREBLOC EMULSION STEP 1 AND STEP 2

90 sq.ft./gal / 150 sq.ft./gal

REPORT

Subject: Testing of **MoistureBloc Adhesive Water Vapor Reduction System** by ASTM F1869 Standard Practices for Determining Moisture-Related Acceptability of Concrete Floors to Receive Moisture-Sensitive Finishes, Section 7.7 Quantitative Anhydrous Calcium Chloride Test

PURPOSE ASTM F1869 includes Section 7.7 Quantitative Anhydrous Calcium Chloride Test which has been adopted by some floor tile applicators to determine if a floor is dry enough to allow satisfactory adhesion of floor tile systems. The ASTM procedure calls for placing containers of anhydrous calcium chloride on the surfaces in question, covering them with a water vapor impervious dome and measuring the weight gain of the calcium chloride after 72 hours. The purpose of the following tests is to demonstrate the effect of a surface coating system on the moisture emission (ME, lbs/1000 sq.ft.·24hr) of a water saturated specimen. The specimens were mortar blocks immersed to a point about halfway up their sides in standing water during the test period.

Summary of test #110: The coating system tested was MoistureBloc Emulsion Step 1 & Step 2, an emulsion system. The application rate for each coat was determined from the increase in weight of the mortar block and each coat was allowed to dry for 24 hours prior to application of the next coat.

Set 110 was coated as follows: two coats of MoistureBloc Emulsion Step 1 at 180 sq.ft./gal. to give total application of 90 sq.ft./gal, followed by two coats of MoistureBloc, Emulsion Step 2 at 300 sq.ft./gal. to give total application of 150 sq.ft./gal. ; the top surface of one block was completely coated, the second was left bare, and the third was coated over half its top surface. This was to establish that a half-coated block would behave the same as a fully coated one under the conditions of the test. The observed variation between test blocks appears to be greater than that between half-coated and fully coated blocks.

For all tests two shallow dishes containing calcium chloride were placed on the surface of each block. Each dish was covered with a petri dish lid which was sealed to the surface with paraffin. Moisture emission rates are tabulated below.

neral Experimental:

Specimens: - The specimens were prepared in 10 3/4" x 7" x 1 1/4"(273 x 178 x 32 mm) brownie pans(Ekco 364820) from C 156 mortar (water:sand:cement::0.4:1.0:2.5), placed as directed in C 156. The molds require one mix of mortar per pan. The specimens were allowed to set for 1 1/2 h in the curing cabinet (100 degrees F) then finished to a smooth dense surface with a 4" x 10" steel trowel. The edges were grooved and sealed as for C 156 and the specimens stored in a wet box at laboratory temperature for three days, then demolded and stored in sealed plastic bags for two weeks.

Coating Application: - The specimens were placed in a tray of water about 3/4" deep and presoaked overnight. For set 110 one specimen(A) was completely coated, one(B) left bare, and one(C) half coated (providing a 5" x 7" coated area.) Each coated surface received two coats of the pigmented product at 180 sq.ft./gal (spread evenly with a wide putty knife) and two coats of the clear sealer at 300 sq.ft./gal (sprayed) with 24 hr dry time between each coat. Coverage was determined by weight of the coated specimen

F1869: -Two weighed dishes of anhydrous calcium chloride were placed on each specimen and each dish was covered with a 90 mm inside dia. petri dish lid, sealed to the surface with paraffin (Fig. 1). The specimens were stored in the tray of water for three days at laboratory temperature, then the calcium chloride dishes were removed and reweighed. The increase in weight (in grams) is ΔM . The surface area under the petri dish lid(A) is $(45)^2\pi = 6362 \text{ mm}^2$ (0.068 sq.ft.). In accordance with F1869, moisture emission (ME) is calculated as $52.9(\Delta M/tA)$, where t is test time in hours. The conversion factor 52.9 incorporates the constants necessary to give ME in lbs./1000sq.ft. in 24h.

Results: MOISTUREBLOC EMULSION STEP 1 AND STEP 2

Set 110 (Emulsion)

| | |
|-----------------------------|--------------------------|
| Specimen A(full coat) | 2.9; 2.6 |
| Specimen B(bare) | 10.6; 10.6 75% reduction |
| Specimen C(half coat, bare) | 3.1, 12.2 75% reduction |

Discussion: Sets 110 clearly demonstrates the reduction of moisture emission by the coating system. The water borne system (110) may be less efficient than the solvent borne, but the difference could be an artifact of the experiment. The range of results on the bare surfaces suggest that the variability of the mortar specimens is greater than any effect of partially coating the surface. The results are within the general range of those reported for actual floors which supports the assumption that the procedure adopted provides results comparable to what might be expected in field applications.

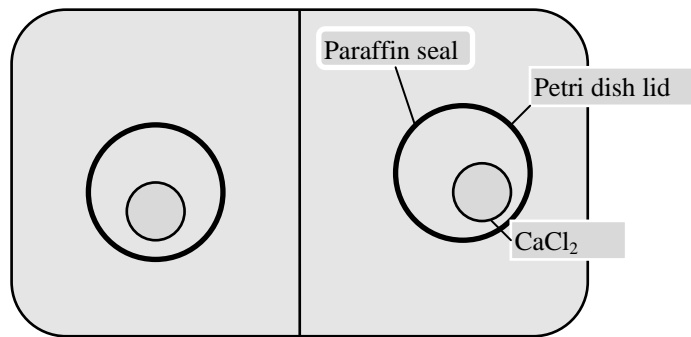


Fig. 1 Top view of specimen