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## MOISTURE CONTROL PRODUCT COMPATIBILITY TECHNICAL BULLETIN

A commonly asked question in the construction industry is: Are moisture control products compatible with flooring system components (cementitious topcoats, primers, adhesives, flooring material)? The answer, almost exclusively, is yes. In fact, most moisture control product manufacturers have rigorously tested their products, in the lab as well as the field, to determine compatibility, and to rule out the risk of potential incompatibility. Since most moisture control products are warranted for specific performance, typically over a significant time interval (10-15 years is commonplace), it is incumbent on moisture control manufacturers to proactively test product compatibility performance characteristics. This is common sense.

### Product Incompatibility or Salesmanship?

Moisture control product manufacturers and distributors commonly deal with the question of compatibility when it is raised by contractors or other flooring system component manufacturers. The “incompatibility” suggestion is usually presented in one of two contexts. The first commonly promoted suggestion with respect to moisture control products is they are “incompatible” with other manufacturer’s products because those manufacturers are seeking to evade potential risk liability if there is a flooring system failure. These manufacturers suggest that the potential for failure may be tied to “incompatibility” of various products as a conditioned response to trying to transfer warranty liability to the moisture control product manufacturer and/or contractor performing the installation. **Over millions of square feet, and thousands of jobsite installations, OBEX’s moisture control products have yet to experience an issue with failure liability associated with product incompatibility.**

The second most often suggested “risk” is that one manufacturer’s moisture control products are “incompatible” with another manufacturer’s flooring system components—cementitious topcoats, primers, adhesives, flooring material—which is driven by a clear and specific motivation of promoting their own, alternative moisture control products. OBEX has yet to see verifiable, published test data/information to corroborate this commonly suggested opinion. On the contrary, Creteseal CS2000 and Creteseal MAX products have been tested across a wide-array of various flooring system products, produced by a myriad of manufacturers’ products, to validate compatibility. Finally, Creteseal CS2000 and MAX have proven their effectiveness in application over millions of square feet of freshly poured and retrofit concrete scenarios, in which many manufacturer product components have been used in a variety of successful combinations. The efficacy of Creteseal CS2000 and MAX are clearly demonstrated by OBEX’s confidence in providing an industry-leading 15-year warranty against premature flooring failure resulting from negative-side moisture intrusion. Both Creteseal CS2000 and MAX are formulated to provide integral, complimentary properties to the concrete slabs on which they are applied. **OBEX’s moisture control products have yet to experience a warranty-related claim matter associated with product incompatibility.**

To the contrary, the greatest risk of moisture control failure isn’t really a matter of risk to the product specifically, but instead unfavorable environmental conditions and/or poor installation preparation and execution efforts. Specific environmental conditions can also contribute to moisture control failure. Those conditions include, but are not limited to, circumstances such as increased levels of moisture vapor emission rates (MVER) which occur as a result of high initial water to cement ratios or high slump concrete design mixes; and/or environmental conditions including excessive concrete slab exposure to water as a result of heavy rain/flooding; and/or the failure to properly climatize/condition the concrete slab in a finished space prior to completing moisture testing; and/or completely ignoring manufacturer recommendations/specifications regarding moisture testing prior to the



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installation of the flooring system; and/or breaching of the moisture control system as a result of slab shifting (control/expansion joints), settling, cracking, or finally, as a function of mechanical breaches such as trenching, cutting and drilling. All of these conditions, and others, can result in the premature failure of resilient flooring systems.

According to ASTM F710 *Standard Practices for Preparing Concrete Floors to Receive Resilient Flooring*:

The surface of concrete floors to receive resilient flooring shall be dry, clean, smooth and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate-penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitence, mold, mildew and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Non-chemical methods for removal, such as abrasive cleaning or bead-blasting...may be used on existing slabs with deleterious residues.

ASTM F710-19 § 4.2. Installation efforts that do not include a properly prepared concrete surface will potentially undermine the efficacy of a moisture control system and may cause issues with the flooring installation or lead to problems in the future.

### **Non-Porous Surfaces/Burnishing**

Certain flooring systems recommend verifying surface porosity prior to flooring installation, typically via the water droplet test, ASTM F3191, *Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring*, which is a safeguard to verify that the adhesive or topping will bond to the substrate. A burnished slab, or a non-porous slab, will potentially lead to adhesion issues with the specified flooring system, irrespective of any moisture control system incorporated into the project. A water droplet test will verify surface porosity, showing whether or not the slab was burnished during the troweling and finishing operations, and/or whether contaminants have rendered the slab non-porous.

Installing flooring products over low or non-absorptive (sometimes referred to as “non-porous”) substrates such as densely machine-troweled concrete, mature and well-hydrated concrete, existing resilient flooring, polymer terrazzo and others may require adjustments to the surface preparation method or product selection to ensure a successful installation.

ASTM F3191-16 § 5.2. Machine-troweling / power troweling is the standard commercial practice for finishing concrete and allows for concrete finishers to cover larger areas as well as achieve strictly-specified  $F_F$  and  $F_L$  numbers. However, for concrete slabs where resilient flooring systems are specified, it is important to not burn, overwork, or burnish the concrete slab, as machine-troweling can render the surface non-porous and incompatible with the specified flooring system. For projects where strict  $F_F$  and  $F_L$  compliance is required but leaving burn marks or burnishing the slab is a concern, utilizing plastic blades, instead of steel blades, during finishing operations can maintain existing finishing operations and efficiency, without completely closing up concrete pores and leaving a potential problem for the flooring contractor.

When a non-porous slab results in the failure of either the mat bond or the water droplet test, a commonly used, but often overlooked remedy, is to install a non-porous primer and skim topping prior to the resilient flooring installation.



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## Acclimation

In addition to considering proper surface preparation, failure to properly acclimatize the space and flooring system materials prior to installation will increase the potential for the premature failure of the resilient flooring system. ASTM F710 specifically notes:

Acclimation—Because of the role acclimation plays in a successful installation, most resilient flooring manufacturers recommend or require that their flooring products, sundry supplies (adhesives, coatings, welding rods, etc.) and the area to receive the resilient flooring are properly conditioned. Consult floor covering and sundry manufacturers for appropriate temperature and humidity range for the products to be installed and the geographic area where the job site is located. General recommendations are for the installation area and materials listed above to be maintained at a minimum of 65°F (18.3°C) and a maximum of 85°F (29.4°C) for 48 h before, during and for 48 h after completion of the installation. Relative humidity level extremes should also be avoided because of their influence on proper drying and curing of patching compounds and adhesives. General recommended humidity control level is between 35–55%. If a system other than the permanent HVAC source is utilized, it must provide proper control of both temperature and humidity to recommended or specific levels for the appropriate time duration.

ASTM F710 § 4.7.

In summary, while it may serve flooring system component manufacturer's efforts to avoid potential liability risk and/or promote their own moisture control systems, the facts are that compatibility concerns, or incompatibility characterizations, commonly raised by those parties are not substantiated in actual testing results or field experience. Instead, the greatest risk of failure for a moisture control system is directly tied to site preparation and installation execution as well as adequately addressing and controlling environmental conditions that might lead to potential issues. Moisture testing in accordance with ASTM F710 / ASTM F1869 verifies Creteseal CS2000 has been installed correctly and will be effective in protecting the future flooring system. For the Creteseal MAX System, OBEX maintains a nationwide network of OBEX Certified Installers (OCIs) trained in installation procedures, ensuring every project installation is successful and achieves "peace of mind" for the client, as well as all parties in the value chain. This attention to detail and the fact that all Creteseal products are highly-effective in preventing negative-side moisture intrusion when site acclimatization, preparation, and installation procedures are adhered to in accordance with sound, tried, and tested industry standards presents all parties involved in the construction project with an outstanding value proposition.