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COMPARISON OF MOISTURE CONTROL SYSTEMS: DAY OF POUR v. TWO-COMPONENT RESIN-BASED SYSTEMS TECHNICAL BULLETIN

Over 20 years ago, CS2000 was introduced as an industry-changing, value-engineered Day of Pour (DoP) product representing the first truly effective moisture control system that was not a costly two-component resin-based solution. At the time of CS2000's introduction, customers relied almost exclusively on epoxy coatings to prevent water intrusion which led to resilient flooring failures. Over the lifespan of the product, CS2000 has been tested and refined to provide industry-leading moisture vapor emission control (MVEC) performance in the DoP market. OBEX also offers a zero VOC two-component resin-based system, Creteseal MAX, that meets or exceeds ASTM F3010 *Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings* when applied in accordance with OBEX installation instructions. For fresh concrete, both DoP and two-component resin-based solutions are applicable. In retrofit/existing slab construction, only two-component resin-based solutions are an acceptable moisture control solution.

The difference in DoP systems as compared to two-component resin-based systems is the fact that DoP systems effectively mitigate moisture vapor emissions to acceptable levels that will prevent flooring failures, whereas two-component resin-based solutions completely eliminate moisture vapor emissions by encapsulating the entire substrate beneath the ASTM F3010 / E96 membrane. CS2000, as a DoP system, works within the concrete's surface, hardening and densifying the concrete matrix. The chemical composition of CS2000 works at a molecular-level to fundamentally reduce concrete porosity and to substantially reduce the ability for water vapor to migrate through the internal capillary structure of fully-hydrated and cured concrete. The vast majority of project conditions support the undeniable and warranted efficacy of the CS2000 product—CS2000 has been used successfully for decades over millions of square feet of concrete. However, there are conditions that may limit the efficacy of DoP solutions, including: increased levels of moisture vapor emission rates (MVER) occurring due to high initial water to cement ratios, adverse environmental conditions including excessive slab exposure to heavy rains and/or flooding, and the failure to properly climatize/condition the concrete slab in a finished space prior to performing field testing.

CS2000 and MAX have proven their effectiveness in application over millions of square feet of freshly poured and retrofit concrete scenarios. The efficacy of CS2000 and MAX are clearly demonstrated by OBEX's confidence in providing an industry-leading 15-year warranty against flooring failure. Both CS2000 and MAX are formulated to provide integral, complimentary properties to the concrete slabs on which they are applied. MVEC product options for concrete are a function of time and money. Other than the previously highlighted difference in the way the systems work, the next most substantial difference between the CS2000 DoP and MAX two-component resin-based systems is price. Two-component resin-based systems may be 3-8x more expensive than the DoP systems depending on a number of factors. The difference in cost is a function of both material and labor. Two-component resin-based systems are inherently more expensive because of compositional material costs associated with their manufacture, as well as the labor and mechanical preparation costs associated with the installation process. DoP systems are spray-applied near the completion phase of fresh concrete placement and can be done so very quickly and efficiently. Whereas two-component resin-based MVEC requires significantly more labor and mechanical preparation during installation to achieve the expected result for MVEC protection.



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Summarizing DoP versus two-component resin-based MVEC product differences would include the following observations:

- Two-component resin-based products represent an impenetrable moisture control system
- DoP products reduce and mitigate the level of moisture vapor emissions
- Two-component resin-based products represent a significantly more expensive MVEC system
- DoP products are far less expensive than two-component resin-based systems, however, they require testing to verify the DoP solution is mitigating MVER to an acceptable level

The final consideration of the products is schedule-driven. OBEX advocates following manufacturer specifications with respect to moisture testing prior to the installation of flooring over DoP systems. The reason is simple—no one wants to see a flooring failure and over the millions of square feet poured—a lot of learning has taken place in every segment of the value chain. Some competitive offers suggest cutting the moisture-testing corner to eliminate cost and accelerate schedules. OBEX's observations are that testing is in everyone's interests as informed decision-makers. OBEX strongly encourages customers to avoid the headaches, hassles, and high costs associated with failures by testing all DoP slabs in accordance with manufacture specifications and industry standards. In the event moisture testing represents a potentially high level of risk, risk that defies typical warranty considerations, OBEX's policy is to credit customers for the full-value of the CS2000 MVEC system installation toward the Creteseal MAX system which requires no subsequent testing after installation. Considered in that manner, applying CS2000 virtually eliminates any risk of flooring failure, providing owners and contractors with enhanced peace of mind that in the event testing levels are inconsistent with warrantable levels of MVER, the contractor and owner will be covered with a solution. If the construction schedule does not support the HVAC installation, acclimation, and the testing and review process, or the project must be managed on a strict timeline, the two-component resin-based (MAX) system, although more expensive than a DoP system, would likely be the better choice for moisture control.