



## SCP Tech Brief: Concrete – Drying vs. Curing

The difference between “drying” and “curing” of concrete may not always be readily apparent. These terms are often incorrectly treated as interchangeable, especially in reference to concrete that will receive flooring materials. The following definitions of drying and curing are provided to assist in guiding the discussion on these two very important and distinct processes.

### Drying

Drying of concrete is defined as providing the proper conditions to allow the concrete to achieve a moisture condition appropriate for its intended use, usually a concern with the use of flooring or coatings over concrete. The moisture condition of a concrete slab is important for the application of moisture sensitive floor finishes such as vinyl composition tile, linoleum, wood flooring, and non-breathable coatings like epoxy. The moisture condition is specified as a maximum relative humidity by percent or a vapor transmission rate in lbs./1000 ft<sup>2</sup>/24 hr. A typical value specified for relative humidity may be less than 75 to 80 percent to assure the successful application of the flooring materials, while a commonly specified value for vapor transmission rate may be 3 lb/1000 ft<sup>2</sup>/24 hr.<sup>i</sup>

### Curing

Curing of concrete is defined as providing adequate moisture, temperature, and time to allow the concrete to achieve the desired properties for its intended use. For conventional concrete, this typically means maintaining a relative humidity in the concrete of greater than 80 percent, a temperature greater than 50 degrees Fahrenheit for a time typically ranging from three to 14 days depending on the specific application.<sup>ii</sup> Without proper curing, concrete will often not achieve the required performance.

### SCP Products’ Effects on Drying and Curing

While most flooring and adhesives manufacturers require the concrete to be below a certain percent moisture or relative humidity to function properly, they are really concerned about the moisture present at the interface between the concrete and the adhesive and/or flooring. In concrete not treated with Spray-Lock Concrete Protection (SCP) products, a general moisture condition of the concrete determination is sufficient to describe the entire system. SCP products react with available alkalis to close bleed water channels and capillaries with reaction products. This action holds moisture in the concrete to facilitate curing. The surface of the concrete is able to achieve a “dry” condition and able to receive adhesives and flooring while the concrete’s internal structure

is kept at a high level of moisture conducive to continued curing. A description of the entire system based on a total percent moisture or relative humidity is no longer appropriate when using SCP products because the water and water vapor transport mechanisms are significantly affected, allowing the surface of the concrete to act independently of the total slab moisture content. In this way, SCP products serve as an excellent method of curing concrete while providing a slab surface that can receive resilient flooring, adhesives, and coatings in as little as fourteen days.

For more information, please see the following SCP Tech Briefs:

Concrete Curing: <http://concreteprotection.com/tech-brief-concrete-curing/>

Using Coatings and Stains on SCP-Treated Concrete: <http://concreteprotection.com/using-coatings-stains-scp-treated-concrete/>

Is Spray-Lock Concrete Protection a Bond Breaker?: <http://concreteprotection.com/spray-lock-concrete-protection-bond-breaker/>

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<sup>i</sup> Kanare, Howard M., Concrete Floors and Moisture, EB119, 2008, 172 pg.

<sup>ii</sup> Kosmatka, Steven H., Kerkhoff, Beatrix, and Panarese, William C., Design and Control of Concrete Mixtures, 15th Edition, EB001.15, 2002, 372 pg.