

Concrete substrates may be tested for porosity by placing approximately a quarter-size bead of water on the surface to observe absorption. If the water is not absorbed within 5 minutes, the floor should be considered non-porous. Non-porous concrete surfaces are generally rendered porous by sanding or bead-blasting.

POROSITY of the substrate affects adhesive open time and eventual drying time. Adhesives generally dry quicker over porous substrates, whereas adhesives applied over non-porous substrates can take much longer to dry.

Before applying adhesives, the substrate must be completely free of dust and dirt, paint, oil, curing or release agents (concrete surfaces can be modified by either topically applied compounds or by admixed agents in the concrete before it is poured), sealers or existing adhesives, or anything that would interfere with the adhesive making a good bond directly to the concrete. Excessively hard or smooth concrete surfaces may need to be abraded to achieve porosity.

Adhesives and subsequent flooring should not be installed over any substrate where chemical or solvent cleaners or adhesive removers have been used.

ASTM F3191 - 16

Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring -Significance and use

5.1 The ability of a substrate surface to readily absorb water is a key indicator in determining how to correctly install many types of flooring adhesives, primers, self-leveling underlayments, and other products. Several flooring industry publications such as CRI's Carpet Installation Standard, RFCI's Recommended Installation Practice for Homogenous Sheet Flooring, Fully-Adhered, as well as most flooring, adhesive, primer, and underlayment manufacturers reference substrate surface porosity criteria in their application instructions since this directly impacts the spread rate of directly applied material, the open time, and other critical installation factors.

5.2 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.

5.3 Use this practice to obtain a qualitative assessment of substrate water absorption (porosity) and whether or not that substrate should be regarded as porous/absorptive or non-porous/non-absorptive as these terms relate to the installation of resilient floor coverings, adhesives, self-leveling underlayments, primers, and other products. This practice will produce results directly applicable to determining appropriate surface preparation requirements in accordance with manufacturer's specifications, but it is in no way meant to replace published manufacturer's literature regarding the determination of substrate water absorption (porosity) and the impact such has, if any, on substrate preparation requirements and on the installation of their respective materials.

5.4 Substrates that evidence immediate absorption, are chalky or dusty, or have varying degrees of absorption may require priming or other additional surface preparation prior to subsequent installations.

5.5 Substrates that evidence no absorption may indicate the presence of a contaminant that may negatively impact proper adhesion. In such cases, bond tests performed in accordance with the particular manufacturer's established guidelines are strongly recommended.

5.6 The size, shape, and color of the water drop may indicate the presence of contaminants or other special circumstances that may require discussion with the manufacturer of the slab covering to be installed.

5.7 Some surfaces such as concrete can become denser and less porous/less absorptive over time as the material continues to gain strength and densify. The results obtained reflect only the conditions of the substrate at the time and location of the test(s).

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