



Using Vinegar to Solve Elevated pH

Q: Can I fix elevated pH with Vinegar?

A: No, but you can make a nice salad dressing.

A lie can travel halfway around the world while truth is putting on its shoes...Mark Twain

Elevated pH develops as a result of moisture vapor emission. Without water vapor evaporating from the surface from either the curing process or the migration of water vapor through the slab; elevated pH conditions do not occur.

Where does the pH come from in the first place? Efflorescent salts and what are these salts anyway?

-excerpt from Einstein and MVTR - Dickens

Water the Universal Solvent

Water is a very strong solvent, referred to as the universal solvent, dissolving many types of substances. Substances that mix well and dissolve in water (e.g. salts) are "hydrophilic" (water-loving) substances, while those that do not mix well with water (e.g. fats and oils), are "hydrophobic" (water-fearing). The ability of a substance to dissolve in water is determined by whether or not the substance can match or better the strong cohesive forces that water molecules generate between each other. If a substance has properties that do not allow it to overcome this force then the molecules are "pushed out" from water and will not dissolve.

How does this relate to moisture in concrete? Liquid water will dissolve mineral salts during migration and deposit these salts at the surface of the concrete upon evaporation. This process is referred to as efflorescence. The salt deposits can elevate pH only if liquid water is available as a solvent. The degree of salt dissolution in water can change the diffusive properties of the slab and alter the measured MVTR.

Applying vinegar (Acetic acid) as a strategy to mitigate elevated pH resolves nothing, will temporarily cheat the surface pH test (ASTM F710) and contaminate the surface with more of the very thing that created the elevated pH in the first place (e.g. water). Since the elevated pH condition is due to the presence of efflorescent salts, then their removal is the proper method to lowering the potential negative effects of pH, not their neutralization. Floor preparation involving the profiling of the concrete slab with "your method of choice", (e.g. we suggest shot blast), will eliminate the presence of these pH elevating salts and reduce their potential harm to the initial adhesive bond.

For long term assurance a proper moisture mitigation protocol should be a priority starting with attentive preparation, an effective pH resistant primer or membrane for densification of the concrete surface area and a pH resistant adhesive. After all water/water vapor created the elevated pH in the first place and chances are will again so mitigating against it will lead to the best hope for a success.