



Technical Bulletin #14

EFFLORESCENCE

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Efflorescence is a temporary surface discoloration common to all concrete products. The process is caused by the chemical nature of cement. Manufactured cement contains free lime, and when water is added, a series of chemical reactions takes place. These reactions are accompanied by the release of calcium hydroxide that can form a white chalky crystalline salt deposit on the tile surface when reacting with carbon dioxide. This reaction can appear as an overall "bloom" (a softening of color) or in more concentrated patches.

Efflorescence will normally occur only in the period shortly following manufacture and is most often reported within a few weeks or months of installation, depending on the weather conditions during this period. It is difficult to predict how long the effects of efflorescence will last. It depends on the type and amount of deposit as well as local weather conditions. The action of carbon dioxide and rainwater will gradually remove the deposit, in most cases, leaving the original color of the roof intact without further efflorescence occurring.

In the event that one wants to remove the efflorescence before the natural process concludes, there are a number of different approaches that have been shown to be effective. In most cases it is possible to pressure wash the residue from the surface of the tile and then spray apply a new sealer coat to the top side of the roof. This sealer coat should work to force the efflorescence out the backside of the tile until the tile has aged beyond the point where efflorescence occurs.

It should be remembered that the efflorescence phenomenon is temporary in nature. It is superficial and in no way affects the quality or functional properties of the tile.