What is “efflorescence”?  
“Efflorescence” is a white substance that is sometimes seen on concrete products like cast-in-place concrete, pre-cast concrete, pavers, retaining wall block, roof tile, masonry block, grout, brick or block mortar (see figure 1), etc. The Interlocking Concrete Pavement Institute (ICPI) defines efflorescence as “A white deposit of calcium carbonate on concrete surfaces. It results from the reaction of calcium hydroxide with carbon dioxide from the air. The calcium hydroxide is a byproduct when cement hydrates. It is slightly soluble in water and migrates to the surface through capillary action. The calcium hydroxide remains on the surface, reacts with carbon dioxide, which forms calcium carbonate and water. This conversion, depending on weather conditions, will dissipate over time. Calcium carbonate is the most common type of efflorescence.

“Are pavers defective if they have efflorescence?”
Efflorescence might be a nuisance but it is definitely not a defect by industry standards (Per ICPI- “The presence of efflorescence does not compromise the structural integrity and is not indicative of a flawed product” Flagstone Pavers applies the latest advancements in chemical admixtures and concrete mix technology to limit efflorescence. However, there is no method or product presently available that will prevent efflorescence.

“What can contractors and homeowners do about efflorescence?”
Homeowners should hire professional paver contractors who are educated and experienced in handling efflorescence AND who understand how to avoid certain construction and maintenance practices that can contribute to efflorescence development. Efflorescence can either be left alone to Mother Nature’s devises or it can be removed by force. There is no way to estimate how long the Mother Nature method takes to remove efflorescence because cases vary. Efflorescence can be removed using abrasives, chemicals, or both. Efflorescence can come off the surface during the sanding steps of the installation process.

EnviroSafe Masonry Cleaner is a very safe and effective chemical for general cleaning and efflorescence removal. It may be necessary to combine the use of abrasives, chemicals, and high pressure/hot water to remove some cases of efflorescence. See pictures (left) showing pavers before and after applying EnviroSafe.

Did you know…
Efflorescence can bloom from pavers at any time. The residue on these thin pavers was not visible immediately after installation but appeared years later when the pavers were cleaned and sealed. Why? Contributing factors include; over-laying pavers on a non draining sub base (concrete in this case) under a covered area, using highly absorbent-low quality pavers, and excessive/high pressure washing. Fortunately, the residue was not permanently trapped below the sealer because the contractor used Seal’nLock water based sealer.