

## EFFLORESCENCE ON GROUT

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This technical bulletin addresses concerns and questions about the causes, prevention and treatment of efflorescence and mineral film discoloration on Portland cement grout.

Efflorescence can form shortly after grouting, resulting in a brand-new installation that may look splotched or completely covered with a white crust or film, to the dismay of the owner and the installer.

Efflorescence is a mineral deposit that sometimes leaches or migrates to the surface of the grout. These minerals occur naturally in Portland cement, which is present in the grout and many building materials that come into contact with the tile assembly. Many kinds of mineral salts have been detected in samples of efflorescence including sodium sulfate, potassium sulfate, sodium carbonate, calcium sulfate, sodium bicarbonate and calcium carbonate.

Additional minerals can also come from the water used during the installation of the grout or accumulated on the surface of the grout during maintenance. Grout mix consistency, environmental conditions and installation techniques beyond the grout manufacturer's control can also influence the occurrence of efflorescence.

Dense bodied tile such as porcelain, polymer-modified setting mortar and dense substrates prolong the time grout takes to become firm before clean-up. Water mixed with the grout has nowhere to go but out through the grouted joint, and will carry minerals to the grout surface. A wet grout mix and/or clean-up before the grout is properly firm will create the conditions for efflorescence to occur, especially in cooler weather.

Grout selection can reduce the risk of efflorescence appearing on your grout. Prism® Color Consistent Grout is formulated with specialized cement that does not contribute to efflorescence. Fusion Pro® Single Component® Grout is a blend of polymers and inert fillers that does not contain Portland cement and will not effloresce. By selecting the right grout, the installer can leave the project knowing that efflorescence will not appear the next day.

Although unsightly, the mineral deposits can be safely removed by following a few simple steps.

### What to do if you have Efflorescence

In most instances, efflorescence can be removed and future growth inhibited with Aqua Mix® Eff-Ex® over unsealed cement grout. Heavy contamination of efflorescence salts may require a mild acid wash. Aqua Mix or TileLab Sulfamic Acid Crystals is a mild, odorless acid that is intended for use with ceramic or porcelain tiles that are not sensitive to acid attack. Aqua Mix Cement Grout Haze Remover may also be used. Care should be exercised when removing efflorescence from the grout between natural stone tiles that may be sensitive to acid etching.

Grout must cure a minimum of 7 days before attempting to remove efflorescence with an acid wash. Aqua Mix Eff Ex may be used the following day of grouting. Follow the manufacturer's directions when using any products to remove efflorescence. Always test in a small inconspicuous area and allow it to dry completely prior to treating the entire installation.

Never seal grout that is not satisfactory in color, hardness or appearance. Normal sealers are not designed to correct a "problem" grout job. Application of sealers over a problem grout will only tend to enhance the issue and prevent usage of simple corrective measures.

Always observe product precautions and wear appropriate safety equipment. Acid cleaners must not be used on soft natural stone such as marble, limestone or travertine installations. Non-acidic cleaners must be used for these acid sensitive materials. Contact CUSTOM Technical Services for recommendations.

Custom Building Products offers a full line of tile and grout care and maintenance products. Contact the Technical Service Department at **800.282.8786** if you have questions concerning these methods or products.

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