



Technical Bulletin # 120

RE: Efflorescence

DATE REVISED: January 07, 2005

Efflorescence

This bulletin addresses concerns and questions about efflorescence and mineral film discoloration on Portland cement grout.

Efflorescence is a mineral deposit that some times leaches or migrates to the surface of the grout. These minerals occur naturally as part of the Portland cement which is mined and processed from the ground. Additional minerals can also come from the water source used with the grout or placed on top of the grout for maintenance. Although unsightly, the mineral deposit can be removed with a proper washing with a mild acid solution.

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 those associated with the installation.

Many kinds of salts have been detected in samples of efflorescence. These include sodium sulfate, potassium sulfate, sodium carbonate, calcium sulfate, sodium bicarbonate and calcium carbonate

These salts are found in cement and may also be found in the water mixed with the grout. C-Cure incorporates chemicals within the grout to minimize the effects of efflorescence, but efflorescence cannot be totally eliminated. Grout mix consistency, evaporation conditions, and actions/events beyond grout manufacturer control influence the occurrence of efflorescence.

Because jobsite conditions change from one application to another, it is important to adjust grouting techniques.

Dense bodied tile (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 no where to go but upward, and will carry minerals to the grout surface. A wet grout mix and/or clean-up before grout is properly firm will create the conditions for efflorescence to occur, especially in cooler conditions (50-70 F).

Efflorescence removal may be achieved with C-Clean 985 (sulfamic acid). C-Clean is intended for use with non-acid sensitive veneers such as ceramic or porcelain tile. Non-acidic cleaners must be used for acid sensitive materials such as marble, limestone and travertine. Contact Technical Services for recommendations.

Grout stain may be used over properly prepared grout in situations where a permanent seal and color uniformity is desired.

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

Additional efflorescence information is available from the following associations:

NTCA Manual, Document A-7
MMSA Bulletin No. 6 and No. 9
Portland Cement Association: Efflorescence

If you require further assistance or additional information please contact your local C-Cure Affiliate or Technical Services Department at 800-895-2874.

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