



TECHNICAL BULLETIN

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RE: Information regarding sulfamic acid and other acid types commonly used for cleaning ceramic tile and grout installations.

We Recommend:

C-Clean Sulfamic Acid

Sulfamic acid is most commonly available in granular form. Its maximum concentration is limited when mixed according to the manufacturer's instructions. For this reason, sulfamic acid is safe and recommended for most tile installations. It is not recommended for natural marble, limestone or travertine. Sulfamic acid is strong enough to dissolve efflorescence and mortar residue but not strong enough to damage most ceramic or porcelain tile. Sulfamic acid does not produce toxic fumes, which can corrode chrome or steel surfaces. It will not bleach or burn grout joints when used as directed, and does not cause hazardous or corrosive transport, handling or storage problems. Use sulfamic acid (**C-Clean**) for the following:

- A) To remove grout haze and mortar residue:
Sulfamic acid dissolves hardened Portland cement by converting the constituents of the cement into soluble salts, which are dissolved by water.
- B) To remove efflorescence. Sulfamic acid will react with efflorescence on grout. Chemical action changes water insoluble calcium carbonate into soluble calcium hydroxide and carbon dioxide gas.
- C) To remove construction dirt and debris. Sulfamic acid will react with gypsum dust (drywall dust) and will safely remove surface contaminants such as construction dirt/debris, wallboard compound/texture over-spray.

Note: Do not use C-Clean on acid sensitive grout colors: #11 Agave, #12 Big Thicket, #15 Blue Norther, #37 Morning Mist, #41 Sea Foam, #86 Ocean Blue, #104 Jasper and #140 Black Jade. For specific cleaning procedures on these colors, contact the Texas Cement Technical Department - 800-669-0115.

Phosphoric Acid

When properly diluted it may be used to remove efflorescence and mortar residue.

Note: Phosphoric acid has been known to bleach some pigments found in colored grouts, i.e. brown grouts may turn orange, blue grouts may turn yellow, etc. Always test a small area before cleaning grout.

Phosphoric Acid Cleaner from Aqua Mix® A particularly effective cleaner when used as directed.

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Restore™ from StoneTech™ - A proprietary acid cleaner. Usage is similar to C-Clean and Phosphoric Acid. Follow Manufacturers directions.

We DO NOT Recommend:

Acetic Acid (Vinegar)

Vinegar is usually 4-8% acetic acid by volume. Acetic acid is the acid that gives vinegar its sour taste. Dilute acetic acid in the form of vinegar is harmless and has been consumed as a condiment for millennia. The use of vinegar for regular cleaning of grout is not recommended. Portland cement will slowly disintegrate after repeated exposure to vinegar. After some time, the grout will lose strength, soften and powder out of the joint.

Muriatic (Hydrochloric) Acid Commonly found as pool acid, muriatic acid is more aggressive than Phosphoric or Sulfamic. It is considered an unsafe acid due to its corrosive nature and toxic gas that is formed when in contact with cement. Improperly diluted Hydrochloric acid will damage the integrity of grout and its color, and may etch some glazed ceramic tile on contact. It can cause severe skin burns. Hydrochloric or Muriatic acid left un-neutralized on surfaces will crystallize and re-activate when moisture is present

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possibly causing further damage. **Muriatic (Hydrochloric) Acid is never recommended for any ceramic tile related application.**

Sulfuric Acid

Very aggressive acid. It will attack metals (drain pipes etc.) and organic matter such as skin and flesh. Incorrect dilution with water will lead to a rapid temperature increase and result in boil-over. **Sulfuric acid is never recommended for any ceramic tile related application.**

Nitric Acid

A colorless, corrosive, toxic acid, which can cause severe burns. At room temperature it gives off red or yellow fumes. Reactions of nitric acid with cyanides, carbides, and metallic powders can be explosive. Reactions of nitric acid with many organic compounds are violent and self-igniting. **Nitric Acid is never recommended for any ceramic tile related application.**