

Worksite: _____ Instructor: _____ Date/Time: _____

Topic C716: Acid Etching & Washing Concrete (Muriatic Acid)

Introduction: Muriatic acid is extremely toxic. Handle it with caution and respect. Protect your eyes at all times. Keep all relevant MSDSs' at the site. Make sure all containers are properly labeled as to the contents within them. Exposure symptoms to muriatic acid may include irritation to the nose, throat and larynx; coughing or choking; and dermatitis.

PPE includes safety glasses or goggles, rubber gloves, rubber boots, and a respirator if you are working in an enclosed area. Clothing should cover the arms and legs. Wear a protective apron. A face shield will provide additional protection.

Procedure: Proper safety precautions must be exercised to protect from both the liquid and the fumes when muriatic acid is being used.

- When mixing muriatic acid with water, add the acid to the water and not water to acid; a violent reaction may occur. Use a plastic or porcelain lined container. Muriatic acid will corrode metal.
- The concrete surface to be acid etched must be free of grease, oil, and similar contaminants.
- Grease, oil, and other contaminants will insulate the concrete from the acid.
- The concentration of muriatic acid required to etch concrete varies depending on the concrete texture and degree of etching needed.
- Hardened or very slick steel towed floors may require a higher concentration of acid to effectively etch the surface.
- Some procedures recommend starting with 20 parts water to 1 part acid. Apply to small area of concrete as a test. Acid should bubble and fume on concrete surface.
- If there is no reaction, add small quantities of acid to the water/acid solution already prepared and repeat the testing process until a reaction occurs and the desired amount of etching takes place. When testing is complete and the acid solution is ready for use, the concrete area to be etched is normally marked off in sections and the acid solution is applied and allowed to bubble. Areas not showing bubbling of the acid indicate a contaminant on the surface.
- Some very dense, smooth surfaces may need more than one application of acid. The most important requirement in acid etching is surface cleaning after you have done the acid etch. The spent acid, together with the salts formed by the reaction, must be completely removed by scrubbing with a stiff bristle broom or brush and copious water rinsing.
- The final rinse should be checked for pH before the surface is allowed to dry to verify that all acid residues have been removed.
- A properly etched surface should have the texture of fine to medium grit sandpaper.
- Water only dilutes muriatic acid. To neutralize the muriatic acid, use bicarbonate of soda, baking soda, soda ash, or lime.
- Keep a hose handy with a squeeze nozzle to quickly wash any part of your body that might come in contact with the acid.
- Choose one location for mixing acid with water where the hose is accessible. Always have a hose within an arm's reach when mixing.
- Use rubber gloves instead of cloth gloves so the acid will not absorb into the glove and on to the skin.
- Always reseal the unused portion of the acid container while you are on the slab working.
- Be careful of the fumes that can occur while mixing and while applying the acid solution. Breathing an acid cloud can be very painful.

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Conclusion: Always clean your hands before eating. Do not smoke while acid etching and washing. Communicate with fellow workers.

Employee Attendance: (Names or signatures of personnel who are attending this meeting)

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These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.