

**Macleod Industries Australia Pty Ltd**  
**Guidelines for Acid Etching of Swimming Pools**

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**General Information**

There are three main reasons why it is necessary to acid wash.

- 1) To neutralize the lime and active cement (laitance) concrete of **new** concrete.
- 2) To open the cement surface to promote penetration and adhesion of coatings.
- 3) To remove build-up of (alkaline) chemicals and mineral salts on surfaces.

The dilution ratios mentioned in most of our preparation and application sheets are based on commonly available concentrations of approximately 33%. "Spirits of Salts" is an indication of a concentration between 32% and 36%. In some areas, muriatic acid may be sold. This is a 25% concentration. Some adjustment to dilution ratios may be necessary; if you are using muriatic acid.

**Handling Acid**

Note: This document is not, nor is it a substitute for, a Material Safety Data Sheet for hydrochloric acid. It may be advisable or required for you to obtain an MSDS for hydrochloric acid. This document merely discusses the use of acid **as it relates to the preparation of swimming pools.**

For the purpose of the remainder of this document, hydrochloric acid will be referred to as "acid". This is not an indication that the warnings or instructions on hydrochloric acid will be relevant to the handling and use of any other acids.

- 1) Acid is corrosive and a strong oxidizing agent. It can cause chemical burns to the skin and can damage the eyes. Wear protective goggles and gloves and beware of splashes. If on your skin or in your eyes, wash immediately with copious quantities of water and seek medical advice if irritation or pain persists. Acid-resistant aprons or overalls should be considered.
- 2) When diluting acid, **ALWAYS** add acid to water. Take care in mixing. Add acid slowly and smoothly, taking care not to splash. Stir gently. The solution may warm slightly
- 3) We recommend that you mark the container you are using to dilute the acid so that it cannot be mistaken for pure water or some other liquid. **KEEP THE CONTAINER WELL AWAY FROM CHILDREN.** This container should be well rinsed before it is used for any other purpose.

Neutralize used or left-over acid before disposal. Acid can be neutralized by using sodium bicarbonate or other alkaline material such as cement or marble chips. Please consider your local council rules and sewage regulations regarding disposal.

## **APPLICATION OF ACID**

- 1) Apply recommended dilution of acid directly to dry concrete using a plastic watering can equipped with a rose. You may spread the acid using a broom or brush, to ensure all areas have been exposed to fresh acid, but do not scrub the acid into the surface.
- 2) Work in sections, no more than two or three metres wide, working from the bottom of the wall upward, to ensure all areas have been exposed to fresh, unreacted acid.
- 3) The acid should effervesce and will likely turn a yellow colour. The acid may be left on the surface for up to 5 minutes, so long as the acid solution does not dry on the surface. If the acid does not effervesce on a bare render surface, it may mean:
  - The acid is spent; try applying fresh acid.
  - The surface has a film over it, or some other protective compound, like a PVA curing compound; try increasing the concentration of the acid.
  - The concrete is still contaminated with oil or grease; you may need to carry out a repeat degreasing of the surface.
- 4) When the reaction has stopped, wash the surface down thoroughly with ample fresh water. A brush of the surface with a clean broom may be helpful at this time to assist in rinsing. **DO NOT ALLOW THE ACID SOLUTION TO DRY ON THE SURFACE**
- 5) **THE FINAL STEP**

Having completed the acid/rinse cycle it is now important to ensure the complete removal of **ALL** solubles by high pressure waterblasting (using a machine capable of producing 3000 p.s.i.). Allow the surface to dry out and then sweep or vacuum to remove all loose sand, dust or other particles.

## **GENERAL NOTES:**

Having completed your acid rinse, inspect the surface to ensure a uniform sandpaper feel (if bare render). Smooth patches may indicate fats, grease, or surface treatments which require further attention.

Use only fresh water. **DO NOT** use brackish or bore water.

Allow a minimum of three (3) days at 25° C, 50% relative humidity prior to painting.