

# ACID

**Holcim Acid is a traditional etching solution used to prepare concrete surfaces for sealing.**

## 1. Description

Holcim Acid is a concentrated acidic solution which, when correctly diluted, removes surface laitance (efflorescence) from concrete. Holcim Acid is primarily employed to lightly ‘etch’ the floor in preparation for sealing but can also be used to change the appearance and texture of concrete.

This product guide covers the preparation and application of Holcim Acid - if there is any question as to the suitability or application of this product please contact Holcim prior to use. Refer to the SDS for full Health and Safety information.

## 2. Precautions

- Holcim Acid is a STRONG ACIDIC SOLUTION and should be used with extreme care - please ensure all safety guidelines are read prior to use and are strictly adhered to during application.
- All susceptible surfaces i.e. walls and joinery, should be protected from splashing during application.
- The concrete surface must be well buffered with water prior to application of Holcim Acid - failure to do so will result in ‘acid burns’ to the concrete surface.
- Ensure runoff during application is correctly neutralized to prevent corrosion of surrounding surfaces i.e. untreated concrete, asphalt etc.
- DO NOT dispose of Holcim Acid down drains or waterways.

## 3. Test Area

Prior to full application of Holcim Acid it is recommended that a small test area away from the main visual area of the floor is prepared (following instructions) to ensure that the acid is correctly diluted for your application.

Correctly diluted	The acid ‘bubbles’ lightly on the surface, and following short exposure (<1 min), neutralization, and drying, the area appears free of surface laitance (dusty or ‘chalky’ substance on surface).
Too concentrated	Aggressive bubbling is observed on application of the acid, and after a short period (<1 minute) concrete starts to corrode, exposing sand grains, then aggregate particles. Following neutralization and drying, concrete appears darker with ‘grainy’ or textured appearance.
Too dilute	Little to no ‘bubbling’ evident following application of the acid, and following neutralization and drying, the area appears unchanged.

If the concrete surface is still ‘soft’ (if concrete is not fully cured or incorrectly finished) the acid will have a corrosive effect, like that of a ‘too concentrated’ solution.

Always start with the weakest applicable dilution as the concentration can always be increased.

- Conversely, if the solution is too concentrated and adversely alters the concrete surface, the effects are a lot more difficult or impossible to remedy!

#### 4. Preparation

The concrete must be clean and free of any contamination prior to application of Holcim Acid.

Ensure all susceptible surfaces i.e. walls, joinery etc, are protected from any contact with Holcim Acid.

- Polythene or cardboard can be used to protect walls and joinery

#### 5. Equipment

- Polythene sheet or tray (placed under watering cans when diluting the acid).
- Plastic watering can (x2).
- Hose (or source of fresh clean water).
- Broom – soft bristle
- Wet and Dry Vacuum cleaner (interior floors only).
- Safety Equipment – see section 8. Personal Protective Equipment.

#### 6. Application

Dilution:

- Dilute Holcim Acid with clean water to the appropriate concentration.
  - ALWAYS add Holcim Acid to water (not the other way around).
- Place watering can on polythene sheet or soil away from the concrete surface.
  - Any spills of acid preparation will burn the concrete surface.

Strength	Dilution (Acid:water)	Description
Mild etch	1:30	Recommended for preparation of internal floors, or areas with minimal surface laitance. Will not significantly alter texture of the floor.
Medium etch	1:20	Recommended for preparation of external surfaces, or areas with significant surface laitance. Prolonged treatment exposes sand (and eventually aggregate), increasing surface texture and changing concrete appearance.
Heavy etch	1:10	Recommended ONLY when heavy exposure or ‘Sandstone’ effect is required. Will significantly alter the appearance and texture of the concrete - proceed with caution!

Application:

Apply Holcim Acid to small areas at a time (initially 2 - 4 m<sup>2</sup>) and start away from main parts of the floor to get comfortable with procedure.

- Wet down area with clean water, making sure water is ALWAYS visible on the surface where Holcim Acid is applied.
  - If surface is not properly wet, the Holcim Acid will react directly with the concrete surface resulting in ‘acid burns’, which significantly alter both the concrete colour and texture.
- Disperse solution with watering can in a controlled motion.
  - Solution can be moved around with soft bristle broom, ensuring solution is spread evenly over surface.
    - Take care not to ‘sweep’ aggressively as this will damage the concrete surface.
  - Care must be taken NOT to exceed area which has been pre-wetted.

- Once initial reaction has stopped (typically 1-2 minutes), dilute out acid with excess water.
  - Internal surfaces: Vacuum up with wet and dry vacuum.
  - External surfaces: Use excess water to wash solution off concrete surface ensuring runoff does not go down waterways, or onto areas susceptible to pH changes i.e. gardens.
- Repeat process over whole area to be treated, remembering to keep surface wet as you move from area to area.
- Once complete, rinse floor with clean water, using wet and dry vacuum to remove from the interior surfaces.

Coverage: Coverage is dependent on dilution rate.

Clean-up:

- All equipment should be thoroughly rinsed with clean water.
  - Ensure runoff does not go down waterways, or area's susceptible to pH changes i.e gardens.

## 7. Storage and Handling

*Pack Sizes:* 5 and 20 L units.

*Handling:* Keep exposure to a minimum, and minimise the quantities kept in work areas. Avoid skin and eye contact and inhalation of vapour, fumes, mist and aerosols. Wear suitable personal protective equipment – see section 8.

*Storage:* Store in cool, dry, well-ventilated place in original container. Store out of reach of children. Store away from direct sunlight, oxidizing agents (e.g. pool chemicals and nitrates), acids, anionic, detergents, and foodstuffs. Keep away from naked flames and other heat sources. Take precautions against static discharge. Ensure container is sealed when not in use and checked regularly for leaks or spills. Do not allow vapours to collect in enclosed spaces. Holcim Acid can be stored for up to 12 months.

## 8. Personal Protective Equipment

*Eyes:* Avoid contact with eyes. Use safety glasses and/or chemical splash goggles.

*Skin:* Suitable protective workwear e.g. cotton overalls buttoned at the neck and wrist are recommended. Chemical resistant apron is also recommended where large quantities are handled. Protective gloves are recommended. PVA or Viton/Butyl gloves are recommended. Replace frequently. Gloves should be checked for tears or holes before use. Open cuts abraded, or irritated skin should not be exposed to this material. Wear rubber safety boots.

*Respiratory:* A respirator is recommended. Use a respirator with an acid gas cartridge and a full-face mask. Ensure that the cartridges are correct for the potential air contamination and are in good working order. Refer to SDS for full safety information.

Refer to the SDS for full Health and Safety information.

## 9. First Aid

*Swallowed:* DO NOT induce vomiting. Rinse mouth with water. If conscious, give pent of water to drink. Contact the National Poison Centre (0800 764 766) or doctor/physician immediately. If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering lungs.

*Eyes:* Immediately flood with copious quantities of water, holding eye open if necessary, for at least 15 minutes. Immediately call the National Poison Centre (0800 764 766) or a doctor/physician.

*Skin:* Remove contaminated clothing and shoes and wash skin thoroughly with excess water. If irritation occurs or persists, seek medical attention. Launder clothing and clean shoes before re-use.

*Inhalation:* Remove patient from exposure, keep warm and at rest. If there is respiratory distress, give oxygen and seek immediate medical attention.

**10. Physical Properties and Identification**

*Appearance:* Colourless to yellow liquid

*Odour:* Pungent irritating fumes

*Solubility:* Miscible with water in all proportions

*Reactivity:* Highly corrosive to most metals with evolution of hydrogen gas. Reacts violently with alkali reacts with sodium hypochlorite to evolve chlorine gas.

*UN Number:* 1789

*HSNO Approval:* HSR001557

*Hazchem code:* 2R

*DG Class:* 8, 6.1

*Packing Group:* II

**Product Warranty**

The information contained in this document is true and accurate to the best knowledge of Holcim New Zealand Ltd. We cannot however anticipate all conditions under which this information and our products may be used. Holcim New Zealand Ltd therefore accepts no responsibility and offers no warranty with respect to results obtained by the application of our products, their suitability, or for their safe use. Holcim New Zealand Ltd offers our products for sale subject to, and ‘The Customer’ and all users are deemed to have accepted, our Terms and Condition of Trade. Holcim New Zealand Ltd warrants our products to be free of manufacturing defects. If the product when purchased was defective and was within recommended storage life when used, Holcim New Zealand Ltd will replace the defective product with new product without charge to the purchaser. Holcim New Zealand Ltd makes NO OTHER WARRANTY, either expressed or implied, concerning our products.