HYDROCHLORIC ACID

Date of Issue – January 2019 V1.1
This TDS replaces all previous versions.

TECHNICAL DATA SHEET

DESCRIPTION

Hydrochloric Acid is used for etching concrete where grinding is not an option or cannot be carried out to prepare the floor for a new coating. Acid etching will remove most of the weak, milky layer of cement dust, lime and sand fines that can rise to the surface with over-wet concrete, poor curing or over-trowelling. You can also use acid in weaker concentrations to remove white mineral deposits (efflorescence) and heavy grime. Oil stains and some other various contaminations have to be treated with a concrete degreaser first, as acid etching will not penetrate those areas and not work effectively.

FEATURES & ADVANTAGES

- Dust free process
- No grinding needed for surface preparation
- Viable preparation to accept new coating
- Removes most of the weak, milky layer of cement dust, lime and sand fines
- Removes white mineral deposits (efflorescence)
- For interior and exterior use
- Easy to apply

RECOMMENDED USE

- Trowel finished concrete
- Exposed aggregates
- Broom finished concrete
- Footpaths and driveways
- New and old concrete
- Garages and workshops
- Factories and shops
- Domestic and retail flooring
- Restaurants and Public Municipalities
- Schools, hallways and much more…

TECHINCAL DATA & CHARACTERISTICS

APPEARANCE	Liquid
COLOUR	Colourless to yellow liquid
VOLUME SOLIDS	25 - 35 %
FINISH	N/A
COVERAGE	N/A
MIX RATIO	N/A
PACK SIZES	5L & 20L
SPECIFIC GRAVITY	1.10 kg/l (approximately)
POT LIFE	N/A
DRYING TIME	N/A
RECOAT TIME	N/A
FULL CURE	N/A
SHELF LIFE	24 months, if properly stored in original unopened containers at temperatures between 10°C and 30°C, away from sunlight.

* The pot life time depends on climatic conditions and temperatures.

** Drying times generally depend on air circulation, temperature, film thickness, and application methods. The figures given above are typical with good ventilation, typical film thickness and single coat application.

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SURFACE PREPERATION

All surface preparation has to be carried out to Australian Standard or International Standard. New concrete must be cured for a minimum of 28 days before a coating.
Concrete moisture test should be carried out prior coating application as per Standard ASTM D4263 and/or International Standard. The moisture content should be less than 4%.
Surface to be treated must be structurally sound and the substrate compressive strength should be at least 25MPa. All non-structural cracks, holes and surface deformities should be repaired.
In general, the surface to be treated MUST be clean and free of all traces of loose material, dirt, debris, mildew, oil, grease, old coatings, curing compounds, release agents, laitance, dust and other contaminants.

All new or old concrete surfaces should be prepared by mechanical grinding, abrasive blasting, blast-tracking, or any other suitable preparation/cleaning methods. Check if all traces of oil and other contaminants have been completely removed. Sprinkle a few water drops over the surface, and if all the water is quickly absorbed, the surface is sufficiently oil and grease free. If the water beads up, even in certain areas only, further preparation/cleaning has to be carried out.

For more detailed information, see the following standard codes of practice, guides and techniques:
ASTM D4258 Standard Practice for Surface Cleaning of Concrete for Coating
ASTM D4259 Practice for Abrading Concrete
ASTM D4260 Practice for Liquid and Gelled Acid Etching of Concrete
ASTM D4262 Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces
ASTM D4263 Test Method Indicating Moisture in Concrete by the Plastic Sheet Method
ASTM D4285 Test Method for Indicating Oil or Water in Compressed Air

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APPLICATION & GUIDELINES

Mix Ratio for Concrete Etching

CAUTION! Always add acid to water, not water to acid.

Slightly shake or stir hydrochloric acid container before use. Mix 10 Parts Water with 1 Part Hydrochloric Acid. The mix ratio is 10:1. At all times use PPE when handling hydrochloric acid, as per Safety Data Sheet (SDS). Mix diluted solution thoroughly prior to applying on concrete.

Application

Before acid-etching, make sure the concrete floor is cleaned properly of all contaminants, oil, grease and dirt. We recommend to use a concrete degreaser first, especially in the heavily contaminated areas. Tyres too release chemicals; those areas in particular need thoroughly degreasing. Contrary to what many people think, acid will not clean certain chemical contaminations, grease and oil spots. In fact, if these areas have not been cleaned and degreased properly, the acid solution will just sit on top and not react with the concrete. After degreasing the concrete floor, sprinkle a few water drops over the surface, if all water is quickly absorbed, the surface is sufficiently oil and grease free. If the water beads up, even in certain areas only, further preparation/cleaning has to be carried out prior to etching and coating.

After degreasing the concrete garage floor, rinse off the floor and let it semi dry. Lightly spray down the concrete in your garage, so that the concrete is slightly wet but not puddling water. If you have a large garage floor, you may want to acid-etch in sections. Do not let the concrete dry out before or during application of the acid solution.

Once the solution is applied, scrub it into the concrete with a push broom or long handled scrubbing brush. This helps to create a uniform etch of the concrete. Let the solution sit for 10 – 15 minutes while it continues to fizz and bubble. Do not let the floor dry out during this process. Add more acid solution if necessary.

IMPORTANT - Neutralizing

Mix 20 parts Water with 1 part Bi-Carbonate Soda. The mix ratio is 20:1. Apply the neutralizing solution over the concrete garage floor that was etched and let it sit there for at least 10 minutes. When time is up, use a wet vac to drain out the floor. Dispose neutralized solution in accordance with local legislation. If local legislation and water codes allow it, you can just simply rinse out your concrete garage floor. Please check with your local council prior to proceeding with any etching and cleaning. Once the initial neutralizing solution is cleaned up, it is important to thoroughly flush and rinse off the remaining solution from the concrete multiple times.

If neutralizing is not done properly, acid etching can leave a white powdery residue, also known as calcium carbonate, on the concrete garage floor once dried. This is a fine white dust which causes problems and will not allow the coating to adhere properly, resulting in problems later such as delamination or reaction with the coating.

After etching, check the surface of the concrete at this time. It should feel similar to medium grit sand paper with a uniform texture. If not, you will need to repeat the process again. Check the surface, especially former contaminated areas, and sprinkle a few drops of water over the surface. If all the water is quickly absorbed, the surface is sufficiently oil and grease free. If the water still beads up, even in certain areas only, further preparation/cleaning/degreasing has to be carried out prior to coating, as those areas will prevent sound adhesion and the coating will fail later.

Compatibility & Suitability

Do NOT mix this product or use this product in combination with any other products or brands. Due to the differences in substrates, material and site conditions, and environmental surrounds, the applicator holds whole responsibility for checking the product's suitability for its intended purpose prior to application. Only products of the same brand/system should be used in combination as a system.

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PRECAUTIONS

Safety Data Sheet and Technical Data Sheet must be read before using and opening this product. Keep out of reach of children. Always wear personnel protective equipment (PPE) when handling this product. Keep away from heat and flame. No smoking. Provide adequate ventilation. For more details refer to safety data sheet (SDS).

Do not apply if the air or surface temperature is below 10°C, or if the temperature is likely to drop below 10°C during applying, or after application, within the curing time.

Do not apply if the substrate is subject to hydrostatic pressure or rising dampness.

Do not apply if the surface is subjected to unusual high temperatures above ambient temperature.

Do not apply if the surface temperature is over 30°C, or if the surface temperature is likely to rise above 30°C during application, or after application within the curing time, or if relative humidity is expected to become above 85%.

Do not apply if the substrate is subject to rain or moisture, and protect the surface for at least 24 hours against any water impact or moisture, after application within the curing time. Do not use any product past its pot life. Store locked up, in a cool, dry, well-ventilated place, away from sunlight, between 10°C and 30°C. Keep container tightly closed.

DISCLAIMER

Do not apply this product if there is uncertainty about its application or surface preparation. This Technical Data Sheet is to be used as a guide only; it is NOT a specification. Durable Concrete Coatings Pty Ltd has no control over the use or storage of this product and therefore does not accept liability in this regard. Any verbal advice given should not be regarded as authoritative information. This information is subject to change without notice, therefore all applicators should ensure they have current information. This product is intended for the use only of skilled tradesman and where applicable, statutory licensed tradesmen experienced and trained in the use of this product. Due to differences in substrates, application methods and local conditions purchasers of these products must ensure that it is suitable for their specific application before using these products. While the information contained in the TDS and SDS is accurate to the best of our knowledge, Durable Concrete Coatings Pty Ltd cannot guarantee that the information contained is wholly comprehensive. Subject to the provisions of the Trade Practices Act, the company's liability in relation to defective products shall be limited to replacement of the product, if the product is proven to be defective. All Durable Concrete Coatings Pty Ltd terms and conditions apply.

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