



## Bulk Blendz Dishwashing Machine De-Scaler

### A.B.W Online

Chemwatch: 23-5750

Version No: 5.1

Safety Data Sheet according to Work Health and Safety Regulations (Hazardous Chemicals) 2023 and ADG requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 23/12/2022

Print Date: 24/05/2024

L.GHS.AUS.EN.E

## SECTION 1 Identification of the substance / mixture and of the company / undertaking

### Product Identifier

|                               |                                                                                              |
|-------------------------------|----------------------------------------------------------------------------------------------|
| Product name                  | Bulk Blendz Dishwashing Machine De-Scaler                                                    |
| Chemical Name                 | Not Applicable                                                                               |
| Synonyms                      | Dish Washing Machine Descaler                                                                |
| Proper shipping name          | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains phosphoric acid and hydrochloric acid) |
| Chemical formula              | Not Applicable                                                                               |
| Other means of identification | Not Available                                                                                |

### Relevant identified uses of the substance or mixture and uses advised against

|                          |                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| Relevant identified uses | Acid cleaner for the removal of rust and scale from industrial dishwashing machines. |
|--------------------------|--------------------------------------------------------------------------------------|

### Details of the manufacturer or supplier of the safety data sheet

|                         |                                           |
|-------------------------|-------------------------------------------|
| Registered company name | A.B.W Online                              |
| Address                 | 24 Lisa Place Coolaroo VIC 3048 Australia |
| Telephone               | +1300 096 435                             |
| Fax                     | +61 3 9351 1077                           |
| Website                 | http://www.bulkwholesale.com.au.          |
| Email                   | orders@bulkwholesale.com.au               |

### Emergency telephone number

|                                   |               |
|-----------------------------------|---------------|
| Association / Organisation        | A.B.W Online  |
| Emergency telephone numbers       | 0411 387 097  |
| Other emergency telephone numbers | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**

#### Chemwatch Hazard Ratings

|              | Min | Max |              |
|--------------|-----|-----|--------------|
| Flammability | 0   |     |              |
| Toxicity     | 2   |     | 0 = Minimum  |
| Body Contact | 3   |     | 1 = Low      |
| Reactivity   | 1   |     | 2 = Moderate |
| Chronic      | 0   |     | 3 = High     |
|              |     |     | 4 = Extreme  |

|                    |                                                                                                                                                                                                                               |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Poisons Schedule   | S6                                                                                                                                                                                                                            |
| Classification [1] | Corrosive to Metals Category 1, Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Inhalation) Category 4, Hazardous to the Aquatic Environment Long-Term Hazard Category 4 |
| Legend:            | 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI                                                                                           |

### Label elements

|                     |                                                                                                                                                                     |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard pictogram(s) |   |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|             |        |
|-------------|--------|
| Signal word | Danger |
|-------------|--------|

## Hazard statement(s)

|      |                                                         |
|------|---------------------------------------------------------|
| H290 | May be corrosive to metals.                             |
| H314 | Causes severe skin burns and eye damage.                |
| H332 | Harmful if inhaled.                                     |
| H413 | May cause long lasting harmful effects to aquatic life. |

## Precautionary statement(s) Prevention

|      |                                                                                  |
|------|----------------------------------------------------------------------------------|
| P260 | Do not breathe mist/vapours/spray.                                               |
| P264 | Wash all exposed external body areas thoroughly after handling.                  |
| P271 | Use only outdoors or in a well-ventilated area.                                  |
| P280 | Wear protective gloves, protective clothing, eye protection and face protection. |
| P234 | Keep only in original packaging.                                                 |
| P273 | Avoid release to the environment.                                                |

## Precautionary statement(s) Response

|                |                                                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.                                                                               |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].                         |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310           | Immediately call a POISON CENTER/doctor/physician/first aider.                                                                   |
| P363           | Wash contaminated clothing before reuse.                                                                                         |
| P390           | Absorb spillage to prevent material damage.                                                                                      |
| P304+P340      | IF INHALED: Remove person to fresh air and keep comfortable for breathing.                                                       |

## Precautionary statement(s) Storage

|      |                  |
|------|------------------|
| P405 | Store locked up. |
|------|------------------|

## Precautionary statement(s) Disposal

|      |                                                                                                                                  |
|------|----------------------------------------------------------------------------------------------------------------------------------|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|------|----------------------------------------------------------------------------------------------------------------------------------|

## SECTION 3 Composition / information on ingredients

## Substances

See section below for composition of Mixtures

## Mixtures

| CAS No    | %[weight] | Name                     |
|-----------|-----------|--------------------------|
| 7647-01-0 | 10-30     | <u>hydrochloric acid</u> |
| 7664-38-2 | 10-30     | <u>phosphoric acid</u>   |
| 7732-18-5 | >60       | <u>water</u>             |

**Legend:** 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; \* EU IOELVs available

## SECTION 4 First aid measures

## Description of first aid measures

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye Contact  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul> |
| Skin Contact | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                          |
| Inhalation   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>                                                                                   |
| Ingestion    | <ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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## A.B.W Online Dishwashing Machine De-Scaler

- ▶ Urgent hospital treatment is likely to be needed.
- ▶ If swallowed do **NOT** induce vomiting.
- ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- ▶ Observe the patient carefully.
- ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- ▶ Transport to hospital or doctor without delay.

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

For acute or short term repeated exposures to strong acids:

- ▶ Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- ▶ Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- ▶ Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- ▶ Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues.

**INGESTION:**

- ▶ Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- ▶ **DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.**
- ▶ Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- ▶ Charcoal has no place in acid management.
- ▶ Some authors suggest the use of lavage within 1 hour of ingestion.

**SKIN:**

- ▶ Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- ▶ Deep second-degree burns may benefit from topical silver sulfadiazine.

**EYE:**

- ▶ Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. **DO NOT use neutralising agents or any other additives.** Several litres of saline are required.
- ▶ Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
- ▶ Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).

[Ellenhorn and Barceloux: Medical Toxicology]

If exposure has been severe and/or symptoms marked, observation in hospital for 48 hours should be considered due to possibility of delayed pulmonary oedema.

**SECTION 5 Firefighting measures****Extinguishing media**

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

**Special hazards arising from the substrate or mixture**

|                             |             |
|-----------------------------|-------------|
| <b>Fire Incompatibility</b> | None known. |
|-----------------------------|-------------|

**Advice for firefighters**

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>Do not approach containers suspected to be hot.</b></li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul> |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered to be a significant fire risk.</li> <li>▶ Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ May emit corrosive, poisonous fumes. May emit acid smoke.</li> </ul> <p>Decomposition may produce toxic fumes of:<br/>hydrogen chloride<br/>phosphorus oxides (POx)</p>                                                                                                                                                 |
| <b>HAZCHEM</b>               | 2X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**SECTION 6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

See section 8

**Environmental precautions**

See section 12

**Methods and material for containment and cleaning up**

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul> |
| <b>Major Spills</b> | <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |

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- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ Wear full body protective clothing with breathing apparatus.
- ▶ Prevent, by any means available, spillage from entering drains or water course.
- ▶ Stop leak if safe to do so.
- ▶ Contain spill with sand, earth or vermiculite.
- ▶ Collect recoverable product into labelled containers for recycling.
- ▶ Neutralise/decontaminate residue (see Section 13 for specific agent).
- ▶ Collect solid residues and seal in labelled drums for disposal.
- ▶ Wash area and prevent runoff into drains.
- ▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- ▶ If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safe handling     | <ul style="list-style-type: none"><li>▶ <b>DO NOT</b> allow clothing wet with material to stay in contact with skin</li><li>▶ Avoid all personal contact, including inhalation.</li><li>▶ Wear protective clothing when risk of exposure occurs.</li><li>▶ Use in a well-ventilated area.</li><li>▶ <b>WARNING:</b> To avoid violent reaction, <b>ALWAYS</b> add material to water and <b>NEVER</b> water to material.</li><li>▶ Avoid smoking, naked lights or ignition sources.</li><li>▶ Avoid contact with incompatible materials.</li><li>▶ When handling, <b>DO NOT</b> eat, drink or smoke.</li><li>▶ Keep containers securely sealed when not in use.</li><li>▶ Avoid physical damage to containers.</li><li>▶ Always wash hands with soap and water after handling.</li><li>▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li><li>▶ Use good occupational work practice.</li><li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li><li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li></ul> |
| Other information | <ul style="list-style-type: none"><li>▶ Store in original containers.</li><li>▶ Keep containers securely sealed.</li><li>▶ Store in a cool, dry, well-ventilated area.</li><li>▶ Store away from incompatible materials and foodstuff containers.</li><li>▶ Protect containers against physical damage and check regularly for leaks.</li><li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Conditions for safe storage, including any incompatibilities

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable container      | <ul style="list-style-type: none"><li>▶ Lined metal can, lined metal pail/ can.</li><li>▶ Plastic pail.</li><li>▶ Polyliner drum.</li><li>▶ Packing as recommended by manufacturer.</li><li>▶ Check all containers are clearly labelled and free from leaks.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Storage incompatibility | <p>Avoid storage with metals, metal oxides, hydroxides, amines, carbonates, alkaline materials, acetic anhydride, cyanides, sulfides, sulfites, phosphides, acetylides, borides, carbides, silicides, vinyl acetate, formaldehyde and potassium permanganate.</p> <ul style="list-style-type: none"><li>▶ Reacts vigorously with alkalis</li><li>▶ Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.</li><li>▶ Avoid strong bases.</li><li>▶ Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.</li><li>▶ Inorganic acids neutralise chemical bases (for example: amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces.</li><li>▶ The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat.</li><li>▶ The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively. The resulting "bumping" can spatter the acid.</li><li>▶ Inorganic acids react with active metals, including such structural metals as aluminum and iron, to release hydrogen, a flammable gas.</li><li>▶ Inorganic acids can initiate the polymerisation of certain classes of organic compounds.</li><li>▶ Inorganic acids react with cyanide compounds to release gaseous hydrogen cyanide.</li><li>▶ Inorganic acids generate flammable and/or toxic gases in contact with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides, and strong reducing agents. Additional gas-generating reactions occur with sulfites, nitrites, thiosulfates (to give H2S and SO3), dithionites (SO2), and even carbonates.</li><li>▶ Acids often catalyse (increase the rate of) chemical reactions.</li></ul> |

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

| Source                       | Ingredient        | Material name     | TWA           | STEL          | Peak              | Notes         |
|------------------------------|-------------------|-------------------|---------------|---------------|-------------------|---------------|
| Australia Exposure Standards | hydrochloric acid | Hydrogen chloride | Not Available | Not Available | 5 ppm / 7.5 mg/m3 | Not Available |
| Australia Exposure Standards | phosphoric acid   | Phosphoric acid   | 1 mg/m3       | 3 mg/m3       | Not Available     | Not Available |

Emergency Limits

| Ingredient        | TEEL-1        | TEEL-2        | TEEL-3        |
|-------------------|---------------|---------------|---------------|
| hydrochloric acid | Not Available | Not Available | Not Available |
| hydrochloric acid | 1.8 ppm       | 22 ppm        | 100 ppm       |
| phosphoric acid   | Not Available | Not Available | Not Available |

| Ingredient        | Original IDLH | Revised IDLH  |
|-------------------|---------------|---------------|
| hydrochloric acid | 50 ppm        | Not Available |

| Ingredient      | Original IDLH | Revised IDLH  |
|-----------------|---------------|---------------|
| phosphoric acid | 1,000 mg/m3   | Not Available |
| water           | Not Available | Not Available |

**MATERIAL DATA**  
None assigned. Refer to individual constituents.

Exposure controls

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Appropriate engineering controls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Hydrogen chloride vapours will not be adequately absorbed by organic vapour respirators. [NSW D.I.R.] Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.<br>Employers may need to use multiple types of controls to prevent employee overexposure.                              |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations.<br>Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.                                                                                                                                                                                                                                                                                                                                                                                                |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type of Contaminant:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Air Speed:                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | solvent, vapours, degreasing etc., evaporating from tank (in still air).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.25-0.5 m/s (50-100 f/min.)    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.5-1 m/s (100-200 f/min.)      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1-2.5 m/s (200-500 f/min.)      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2.5-10 m/s (500-2000 f/min.)    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Within each range the appropriate value depends on:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Lower end of the range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Upper end of the range          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1: Room air currents minimal or favourable to capture                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1: Disturbing room air currents |
| 2: Contaminants of low toxicity or of nuisance value only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2: Contaminants of high toxicity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 |
| 3: Intermittent, low production.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3: High production, heavy use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                 |
| 4: Large hood or large air mass in motion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4: Small hood-local control only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 |
| Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 |
| Individual protection measures, such as personal protective equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                 |
| Eye and face protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>▶ Chemical goggles.</li><li>▶ Full face shield may be required for supplementary but never for primary protection of eyes.</li><li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</li></ul> |                                 |
| Skin protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | See Hand protection below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                 |
| Hands/feet protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>▶ Wear chemical protective gloves, e.g. PVC.</li><li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li><li>▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                 |
| Body protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | See Other protection below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                 |
| Other protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>▶ Overalls.</li><li>▶ PVC Apron.</li><li>▶ PVC protective suit may be required if exposure severe.</li><li>▶ Eyewash unit.</li><li>▶ Ensure there is ready access to a safety shower.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |

**Recommended material(s)**

**GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the: **"Forsberg Clothing Performance Index"**. The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection: Dishwashing Machine De-Scaler

| Material | CPI |
|----------|-----|
| NEOPRENE | A   |

**Respiratory protection**

Type B-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|------------------------|
|------------------------------------|----------------------|----------------------|------------------------|

|                   |   |
|-------------------|---|
| BUTYL             | C |
| BUTYL/NEOPRENE    | C |
| HYPALON           | C |
| NAT+NEOPR+NITRILE | C |
| NATURAL RUBBER    | C |
| NATURAL+NEOPRENE  | C |
| NEOPRENE/NATURAL  | C |
| NITRILE           | C |
| NITRILE+PVC       | C |
| PE                | C |
| PE/EVAL/PE        | C |
| PVA               | C |
| PVC               | C |
| SARANEX-23        | C |
| VITON             | C |
| VITON/NEOPRENE    | C |

\* CPI - Chemwatch Performance Index  
A: Best Selection  
B: Satisfactory; may degrade after 4 hours continuous immersion  
C: Poor to Dangerous Choice for other than short term immersion  
**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -  
\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Ansell Glove Selection

|                                    |
|------------------------------------|
| Glove — In order of recommendation |
| AlphaTec 02-100                    |
| AlphaTec® Solvex® 37-185           |
| AlphaTec® 58-008                   |
| AlphaTec® 58-530B                  |
| AlphaTec® 58-530W                  |
| AlphaTec® 58-735                   |
| AlphaTec® 79-700                   |
| AlphaTec® Solvex® 37-675           |
| AlphaTec® 38-612                   |
| DermaShield™ 73-711                |

The suggested gloves for use should be confirmed with the glove supplier.

|                |          |                    |                         |
|----------------|----------|--------------------|-------------------------|
| up to 10 x ES  | B-AUS P2 | -                  | B-PAPR-AUS / Class 1 P2 |
| up to 50 x ES  | -        | B-AUS / Class 1 P2 | -                       |
| up to 100 x ES | -        | B-2 P2             | B-PAPR-2 P2 ^           |

^ - Full-face  
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

|                                              |                                                   |                                         |                |
|----------------------------------------------|---------------------------------------------------|-----------------------------------------|----------------|
| Appearance                                   | Clear colourless acidic liquid; mixes with water. |                                         |                |
| Physical state                               | Liquid                                            | Relative density (Water = 1)            | 1.22           |
| Odour                                        | Not Available                                     | Partition coefficient n-octanol / water | Not Available  |
| Odour threshold                              | Not Available                                     | Auto-ignition temperature (°C)          | Not Available  |
| pH (as supplied)                             | <1                                                | Decomposition temperature (°C)          | Not Available  |
| Melting point / freezing point (°C)          | <-10                                              | Viscosity (cSt)                         | Not Available  |
| Initial boiling point and boiling range (°C) | ~100                                              | Molecular weight (g/mol)                | Not Applicable |
| Flash point (°C)                             | Not Applicable                                    | Taste                                   | Not Available  |
| Evaporation rate                             | Not Available                                     | Explosive properties                    | Not Available  |
| Flammability                                 | Not Applicable                                    | Oxidising properties                    | Not Available  |
| Upper Explosive Limit (%)                    | Not Applicable                                    | Surface Tension (dyn/cm or mN/m)        | Not Available  |
| Lower Explosive Limit (%)                    | Not Applicable                                    | Volatile Component (%vol)               | 100            |
| Vapour pressure (kPa)                        | Not Available                                     | Gas group                               | Not Available  |
| Solubility in water                          | Miscible                                          | pH as a solution (1%)                   | 1.6-2.6        |
| Vapour density (Air = 1)                     | 1.3                                               | VOC g/L                                 | Not Available  |

SECTION 10 Stability and reactivity

|                                    |                                                                                                                                                                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | See section 7                                                                                                                                                                                                                        |
| Chemical stability                 | <div><div>▶ Contact with alkaline material liberates heat</div><div>▶ Unstable in the presence of incompatible materials.</div><div>▶ Product is considered stable.</div><div>▶ Hazardous polymerisation will not occur.</div></div> |
| Possibility of hazardous reactions | See section 7                                                                                                                                                                                                                        |
| Conditions to avoid                | See section 7                                                                                                                                                                                                                        |
| Incompatible materials             | See section 7                                                                                                                                                                                                                        |
| Hazardous decomposition products   | See section 5                                                                                                                                                                                                                        |

SECTION 11 Toxicological information

Information on toxicological effects

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inhaled      | <p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects. Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.</p> <p>Acidic corrosives produce respiratory tract irritation with coughing, choking and mucous membrane damage. Symptoms of exposure may include dizziness, headache, nausea and weakness. In more severe exposures, pulmonary oedema may be evident either immediately or after a latent period of 5-72 hours. Symptoms of pulmonary oedema include a tightness in the chest, dyspnoea, frothy sputum and cyanosis. Examination may reveal hypotension, a weak and rapid pulse and moist rates. Death, due to anoxia, may occur several hours after onset of the pulmonary oedema.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Ingestion    | <p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p> <p>Ingestion of acidic corrosives may produce circumoral burns with a distinct discolouration of the mucous membranes of the mouth, throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Oedema of the epiglottis may produce respiratory distress and possibly, asphyxia. Nausea, vomiting, diarrhoea and a pronounced thirst may occur. More severe exposures may produce a vomitus containing fresh or dark blood and large shreds of mucosa. Shock, with marked hypotension, weak and rapid pulse, shallow respiration and clammy skin may be symptomatic of the exposure. Circulatory collapse may, if left untreated, result in renal failure. Severe cases may show gastric and oesophageal perforation with peritonitis, fever and abdominal rigidity. Stricture of the oesophageal, gastric and pyloric sphincter may occur as within several weeks or may be delayed for years. Death may be rapid and often results from asphyxia, circulatory collapse or aspiration of even minute amounts. Delayed deaths may be due to peritonitis, severe nephritis or pneumonia. Coma and convulsions may be terminal.</p> |
| Skin Contact | <p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.</p> <p>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Eye          | <p>The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.</p> <p>Direct eye contact with acid corrosives may produce pain, lachrymation, photophobia and burns. Mild burns of the epithelia generally recover rapidly and completely. Severe burns produce long-lasting and possible irreversible damage. The appearance of the burn may not be apparent for several weeks after the initial contact. The cornea may ultimately become deeply vascularised and opaque resulting in blindness.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Chronic      | <p>Repeated or prolonged exposure to acids may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.</p> <p>The impact of inhaled acidic agents on the respiratory tract depends upon a number of interrelated factors. These include physicochemical characteristics, e.g., gas versus aerosol; particle size (small particles can penetrate deeper into the lung); water solubility (more soluble agents are more likely to be removed in the nose and mouth). Given the general lack of information on the particle size of aerosols involved in occupational exposures to acids, it is difficult to identify their principal deposition site within the respiratory tract. Acid mists containing particles with a diameter of up to a few micrometers will be deposited in both the upper and lower airways. They are irritating to mucous epithelia, they cause dental erosion, and they produce acute effects in the lungs (symptoms and changes in pulmonary function). Asthmatics appear to be at particular risk for pulmonary effects.</p>                                                                                                                                                                                   |

|                               |                                                    |                                                           |
|-------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| Dishwashing Machine De-Scaler | TOXICITY                                           | IRRITATION                                                |
|                               | Not Available                                      | Not Available                                             |
| hydrochloric acid             | TOXICITY                                           | IRRITATION                                                |
|                               | dermal (mouse) LD50: 1449 mg/kg <sup>[2]</sup>     | Eye (rabbit): 5mg/30s - mild                              |
|                               | Oral (Rat) LD50: 900 mg/kg <sup>[2]</sup>          | Eye: adverse effect observed (irritating) <sup>[1]</sup>  |
|                               |                                                    | Skin: adverse effect observed (corrosive) <sup>[1]</sup>  |
|                               |                                                    | Skin: adverse effect observed (irritating) <sup>[1]</sup> |
| phosphoric acid               | TOXICITY                                           | IRRITATION                                                |
|                               | Dermal (rabbit) LD50: >1260 mg/kg <sup>[2]</sup>   | Eye (rabbit): 119 mg - SEVERE [Monsanto]*                 |
|                               | Inhalation (Rat) LC50: 0.026 mg/L4h <sup>[2]</sup> | Eye: adverse effect observed (irritating) <sup>[1]</sup>  |
|                               | Oral (Rat) LD50: 1530 mg/kg <sup>[2]</sup>         | Skin (rabbit):595 mg/24h - SEVERE                         |
|                               |                                                    | Skin: adverse effect observed (corrosive) <sup>[1]</sup>  |
| water                         | TOXICITY                                           | IRRITATION                                                |
|                               | Oral (Rat) LD50: >90000 mg/kg <sup>[2]</sup>       | Not Available                                             |

Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HYDROCHLORIC ACID                           | The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.<br>The substance is classified by IARC as Group 3:<br><b>NOT</b> classifiable as to its carcinogenicity to humans.<br>Evidence of carcinogenicity may be inadequate or limited in animal testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| PHOSPHORIC ACID                             | phosphoric acid ( 85%)<br><br>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.<br>The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.<br>Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| HYDROCHLORIC ACID & PHOSPHORIC ACID         | Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.<br>for acid mists, aerosols, vapours<br>Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airways from direct exposure to inhaled acidic mists, just as mucous plays an important role in protecting the gastric epithelium from its auto-secreted hydrochloric acid. In considering whether pH itself induces genotoxic events in vivo in the respiratory system, comparison should be made with the human stomach, in which gastric juice may be at pH 1-2 under fasting or nocturnal conditions, and with the human urinary bladder, in which the pH of urine can range from <5 to > 7 and normally averages 6.2. Furthermore, exposures to low pH in vivo differ from exposures in vitro in that, in vivo, only a portion of the cell surface is subjected to the adverse conditions, so that perturbation of intracellular homeostasis may be maintained more readily than in vitro. |
| HYDROCHLORIC ACID & PHOSPHORIC ACID & WATER | No significant acute toxicological data identified in literature search.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity                    | ✓ | Carcinogenicity          | ✗ |
| Skin Irritation/Corrosion         | ✓ | Reproductivity           | ✗ |
| Serious Eye Damage/Irritation     | ✓ | STOT - Single Exposure   | ✗ |
| Respiratory or Skin sensitisation | ✗ | STOT - Repeated Exposure | ✗ |
| Mutagenicity                      | ✗ | Aspiration Hazard        | ✗ |

Legend:

✗ – Data either not available or does not fill the criteria for classification  
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

|                               |               |                    |                               |                  |               |
|-------------------------------|---------------|--------------------|-------------------------------|------------------|---------------|
| Dishwashing Machine De-Scaler | Endpoint      | Test Duration (hr) | Species                       | Value            | Source        |
|                               | Not Available | Not Available      | Not Available                 | Not Available    | Not Available |
| hydrochloric acid             | Endpoint      | Test Duration (hr) | Species                       | Value            | Source        |
|                               | EC50(ECx)     | 9.33h              | Fish                          | 0.51mg/L         | 4             |
|                               | LC50          | 96h                | Fish                          | 334.734mg/L      | 4             |
| phosphoric acid               | Endpoint      | Test Duration (hr) | Species                       | Value            | Source        |
|                               | NOEC(ECx)     | 72h                | Algae or other aquatic plants | <7.5mg/l         | 2             |
|                               | EC50          | 72h                | Algae or other aquatic plants | 77.9mg/l         | 2             |
|                               | EC50          | 48h                | Crustacea                     | >100mg/l         | 2             |
|                               | LC50          | 96h                | Fish                          | 67.94-113.76mg/L | 4             |
| water                         | Endpoint      | Test Duration (hr) | Species                       | Value            | Source        |
|                               | Not Available | Not Available      | Not Available                 | Not Available    | Not Available |

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

DO NOT discharge into sewer or waterways.

Persistence and degradability

|                   |                         |                  |
|-------------------|-------------------------|------------------|
| Ingredient        | Persistence: Water/Soil | Persistence: Air |
| hydrochloric acid | LOW                     | LOW              |

Continued...

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|------------|-------------------------|------------------|
| water      | LOW                     | LOW              |

Bioaccumulative potential

| Ingredient        | Bioaccumulation        |
|-------------------|------------------------|
| hydrochloric acid | LOW (LogKOW = 0.5392)  |
| phosphoric acid   | LOW (LogKOW = -0.7699) |

Mobility in soil

| Ingredient        | Mobility             |
|-------------------|----------------------|
| hydrochloric acid | LOW (Log KOC = 14.3) |
| phosphoric acid   | HIGH (Log KOC = 1)   |

SECTION 13 Disposal considerations

Waste treatment methods

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product / Packaging disposal | <ul style="list-style-type: none"><li>Recycle wherever possible.</li><li>Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li><li>Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).</li><li>Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.</li><li>Containers may still present a chemical hazard/ danger when empty.</li><li>Return to supplier for reuse/ recycling if possible.</li></ul> Otherwise: <ul style="list-style-type: none"><li>If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li><li>Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li></ul> |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SECTION 14 Transport information

Labels Required

|                  |                                                                                     |
|------------------|-------------------------------------------------------------------------------------|
|                  |  |
| Marine Pollutant | NO                                                                                  |
| HAZCHEM          | 2X                                                                                  |

Land transport (ADG)

|                                    |                                                                                                                   |                    |         |                   |                |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------|---------|-------------------|----------------|
| 14.1. UN number or ID number       | 3264                                                                                                              |                    |         |                   |                |
| 14.2. UN proper shipping name      | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains phosphoric acid and hydrochloric acid)                      |                    |         |                   |                |
| 14.3. Transport hazard class(es)   | <table><tr><td>Class</td><td>8</td></tr><tr><td>Subsidiary Hazard</td><td>Not Applicable</td></tr></table>        | Class              | 8       | Subsidiary Hazard | Not Applicable |
| Class                              | 8                                                                                                                 |                    |         |                   |                |
| Subsidiary Hazard                  | Not Applicable                                                                                                    |                    |         |                   |                |
| 14.4. Packing group                | III                                                                                                               |                    |         |                   |                |
| 14.5. Environmental hazard         | Not Applicable                                                                                                    |                    |         |                   |                |
| 14.6. Special precautions for user | <table><tr><td>Special provisions</td><td>223 274</td></tr><tr><td>Limited quantity</td><td>5 L</td></tr></table> | Special provisions | 223 274 | Limited quantity  | 5 L            |
| Special provisions                 | 223 274                                                                                                           |                    |         |                   |                |
| Limited quantity                   | 5 L                                                                                                               |                    |         |                   |                |

Air transport (ICAO-IATA / DGR)

|                                          |                                                                                                                                                                                                                                                                    |                    |         |                                 |                |                               |      |                                          |     |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------------------------------|----------------|-------------------------------|------|------------------------------------------|-----|
| 14.1. UN number                          | 3264                                                                                                                                                                                                                                                               |                    |         |                                 |                |                               |      |                                          |     |
| 14.2. UN proper shipping name            | Corrosive liquid, acidic, inorganic, n.o.s. * (contains phosphoric acid and hydrochloric acid)                                                                                                                                                                     |                    |         |                                 |                |                               |      |                                          |     |
| 14.3. Transport hazard class(es)         | <table><tr><td>ICAO/IATA Class</td><td>8</td></tr><tr><td>ICAO / IATA Subsidiary Hazard</td><td>Not Applicable</td></tr><tr><td>ERG Code</td><td>8L</td></tr></table>                                                                                              | ICAO/IATA Class    | 8       | ICAO / IATA Subsidiary Hazard   | Not Applicable | ERG Code                      | 8L   |                                          |     |
| ICAO/IATA Class                          | 8                                                                                                                                                                                                                                                                  |                    |         |                                 |                |                               |      |                                          |     |
| ICAO / IATA Subsidiary Hazard            | Not Applicable                                                                                                                                                                                                                                                     |                    |         |                                 |                |                               |      |                                          |     |
| ERG Code                                 | 8L                                                                                                                                                                                                                                                                 |                    |         |                                 |                |                               |      |                                          |     |
| 14.4. Packing group                      | III                                                                                                                                                                                                                                                                |                    |         |                                 |                |                               |      |                                          |     |
| 14.5. Environmental hazard               | Not Applicable                                                                                                                                                                                                                                                     |                    |         |                                 |                |                               |      |                                          |     |
| 14.6. Special precautions for user       | <table><tr><td>Special provisions</td><td>A3 A803</td></tr><tr><td>Cargo Only Packing Instructions</td><td>856</td></tr><tr><td>Cargo Only Maximum Qty / Pack</td><td>60 L</td></tr><tr><td>Passenger and Cargo Packing Instructions</td><td>852</td></tr></table> | Special provisions | A3 A803 | Cargo Only Packing Instructions | 856            | Cargo Only Maximum Qty / Pack | 60 L | Passenger and Cargo Packing Instructions | 852 |
| Special provisions                       | A3 A803                                                                                                                                                                                                                                                            |                    |         |                                 |                |                               |      |                                          |     |
| Cargo Only Packing Instructions          | 856                                                                                                                                                                                                                                                                |                    |         |                                 |                |                               |      |                                          |     |
| Cargo Only Maximum Qty / Pack            | 60 L                                                                                                                                                                                                                                                               |                    |         |                                 |                |                               |      |                                          |     |
| Passenger and Cargo Packing Instructions | 852                                                                                                                                                                                                                                                                |                    |         |                                 |                |                               |      |                                          |     |

|  |                                                           |      |
|--|-----------------------------------------------------------|------|
|  | Passenger and Cargo Maximum Qty / Pack                    | 5 L  |
|  | Passenger and Cargo Limited Quantity Packing Instructions | Y841 |
|  | Passenger and Cargo Limited Maximum Qty / Pack            | 1 L  |

Sea transport (IMDG-Code / GGVSee)

|                                    |                                                                                              |                |
|------------------------------------|----------------------------------------------------------------------------------------------|----------------|
| 14.1. UN number                    | 3264                                                                                         |                |
| 14.2. UN proper shipping name      | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains phosphoric acid and hydrochloric acid) |                |
| 14.3. Transport hazard class(es)   | IMDG Class                                                                                   | 8              |
|                                    | IMDG Subsidiary Hazard                                                                       | Not Applicable |
| 14.4. Packing group                | III                                                                                          |                |
| 14.5 Environmental hazard          | Not Applicable                                                                               |                |
| 14.6. Special precautions for user | EMS Number                                                                                   | F-A , S-B      |
|                                    | Special provisions                                                                           | 223 274        |
|                                    | Limited Quantities                                                                           | 5 L            |

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code  
Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

| Product name      | Group         |
|-------------------|---------------|
| hydrochloric acid | Not Available |
| phosphoric acid   | Not Available |
| water             | Not Available |

14.7.3. Transport in bulk in accordance with the IGC Code

| Product name      | Ship Type     |
|-------------------|---------------|
| hydrochloric acid | Not Available |
| phosphoric acid   | Not Available |
| water             | Not Available |

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

|                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|
| hydrochloric acid is found on the following regulatory lists                                                                   |
| Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals                                                   |
| Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5                                    |
| Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6                                    |
| Australian Inventory of Industrial Chemicals (AIIC)                                                                            |
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic |
| phosphoric acid is found on the following regulatory lists                                                                     |
| Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals                                                   |
| Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5                                    |
| Australian Inventory of Industrial Chemicals (AIIC)                                                                            |
| water is found on the following regulatory lists                                                                               |
| Australian Inventory of Industrial Chemicals (AIIC)                                                                            |

Additional Regulatory Information  
Not Applicable

National Inventory Status

| National Inventory                              | Status                                         |
|-------------------------------------------------|------------------------------------------------|
| Australia - AIIC / Australia Non-Industrial Use | Yes                                            |
| Canada - DSL                                    | Yes                                            |
| Canada - NDSL                                   | No (hydrochloric acid; phosphoric acid; water) |
| China - IECSC                                   | Yes                                            |
| Europe - EINEC / ELINCS / NLP                   | Yes                                            |
| Japan - ENCS                                    | Yes                                            |
| Korea - KECI                                    | Yes                                            |
| New Zealand - NZIoC                             | Yes                                            |
| Philippines - PICCS                             | Yes                                            |
| USA - TSCA                                      | Yes                                            |

| National Inventory | Status                                                                                                                                                                                                       |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Taiwan - TCSI      | Yes                                                                                                                                                                                                          |
| Mexico - INSQ      | Yes                                                                                                                                                                                                          |
| Vietnam - NCI      | Yes                                                                                                                                                                                                          |
| Russia - FBEPH     | Yes                                                                                                                                                                                                          |
| <b>Legend:</b>     | <p>Yes = All CAS declared ingredients are on the inventory</p> <p>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</p> |

## SECTION 16 Other information

|                      |            |
|----------------------|------------|
| <b>Revision Date</b> | 23/12/2022 |
| <b>Initial Date</b>  | 07/05/2010 |

### SDS Version Summary

| Version | Date of Update | Sections Updated                                                      |
|---------|----------------|-----------------------------------------------------------------------|
| 4.1     | 03/09/2020     | Classification change due to full database hazard calculation/update. |
| 5.1     | 23/12/2022     | Classification review due to GHS Revision change.                     |

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

- PC - TWA: Permissible Concentration-Time Weighted Average
- PC - STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit,
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
  
- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
- FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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