

# ACS Mine Stabiliser River Sands

Chemwatch: 41-0177  
Version No: 4.1.1.1  
Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 01/11/2019  
Print Date: 21/10/2020  
S.GHS.AUS.EN

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

### Product Identifier

|                               |  |
|-------------------------------|--|
| Product name                  | ACS Mine Stabiliser  |
| Synonyms                      | Not Available  |
| Proper shipping name          | CORROSIVE LIQUID, N.O.S. (contains 2-phosphonobutane-1,2,4-tricarboxylic acid) |
| Other means of identification | Not Available  |

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

|                          |  |
|--------------------------|--|
| Relevant identified uses | As a cement hydration stabilizer in the mining industry. |
|--------------------------|--|

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

|                         |  |
|-------------------------|--|
| Registered company name | River Sands  |
| Address                 | 683 Beenleigh-Redland Bay Road Carbrook QLD 4130 Australia         |
| Telephone               | +61 7 3412 8111  |
| Fax                     | +61 7 3287 6445  |
| Website                 | <a href="http://www.riversands.com.au">www.riversands.com.au</a>   |
| Email                   | <a href="mailto:info@riversands.com.au">info@riversands.com.au</a> |

### Emergency telephone number

|                                   |               |
|-----------------------------------|---------------|
| Association / Organisation        | River Sands   |
| Emergency telephone numbers       | 13 11 26      |
| 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.**

|                    |   |
|--------------------|---|
| Poisons Schedule   | Not Applicable  |
| Classification [1] | Metal Corrosion Category 1, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Chronic Aquatic Hazard Category 3 |
| 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 | <b>Danger</b> |
|-------------|---------------|

### Hazard statement(s)

|      |  |
|------|--|
| H290 | May be corrosive to metals.                        |
| H312 | Harmful in contact with skin.                      |
| H332 | Harmful if inhaled.                                |
| H314 | Causes severe skin burns and eye damage.           |
| H412 | Harmful to aquatic life with long lasting effects. |

### Supplementary statement(s)

Not Applicable

### Precautionary statement(s) Prevention

## ACS Mine Stabiliser

|      |  |
|------|--|
| P260 | Do not breathe mist/vapours/spray.   |
| P271 | Use only outdoors or in a well-ventilated area.                            |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P234 | Keep only in original container.   |
| 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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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 or doctor/physician.  |
| P321           | Specific treatment (see advice on this label).   |
| P322           | Specific measures (see advice on this label).  |
| P363           | Wash contaminated clothing before reuse.   |
| P390           | Absorb spillage to prevent material damage.  |
| P302+P352      | IF ON SKIN: Wash with plenty of water.   |
| P304+P340      | IF INHALED: Remove victim to fresh air and keep at rest in a position 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  |
|---------------|-----------|---|
| 37971-36-1    | <30       | <u>2-phosphonobutane-1,2,4-tricarboxylic acid</u> |
| 1310-73-2     | <10       | <u>sodium hydroxide</u>                           |
| Not Available | >60       | other ingredients, non-hazardous                  |

## 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 or hair contact occurs:</p> <ul style="list-style-type: none"> <li>Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>Quickly remove all contaminated clothing, including footwear.</li> <li>Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>Transport to hospital, or doctor.</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.</li> <li>Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.</li> <li>Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).</li> <li>As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.</li> <li>Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.</li> </ul> <p><b>This must definitely be left to a doctor or person authorised by him/her.</b><br/>(ICSC13719)</p> |
| Ingestion    | <ul style="list-style-type: none"> <li>For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>Urgent hospital treatment is likely to be needed.</li> <li><b>If swallowed do NOT induce vomiting.</b></li> <li>If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>Observe the patient carefully.</li> <li>Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> </ul>   |

Continued...

- ▶ 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

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]

For acute or short-term repeated exposures to highly alkaline materials:

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- ▶ Oxygen is given as indicated.
- ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

#### INGESTION:

- ▶ Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.

\* Catharsis and emesis are absolutely contra-indicated.

\* Activated charcoal does not absorb alkali.

\* Gastric lavage should not be used.

Supportive care involves the following:

- ▶ Withhold oral feedings initially.
- ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

#### SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

## 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> | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

### 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>▶ Combustible.</li> <li>▶ Slight fire hazard when exposed to heat or flame.</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 acrid smoke and corrosive fumes.</li> </ul> <p>Combustion products include:<br/>carbon monoxide (CO)<br/>carbon dioxide (CO<sub>2</sub>)<br/>phosphorus oxides (PO<sub>x</sub>)<br/>other pyrolysis products typical of burning organic material.</p>  |
| <b>HAZCHEM</b>               | 2X  |

## ACS Mine Stabiliser

## 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

|              |  |
|--------------|--|
| Minor Spills | <ul style="list-style-type: none"> <li>Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.</li> <li>Check regularly for spills and leaks.</li> <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>  |
| Major Spills | <ul style="list-style-type: none"> <li>Clear area of personnel and move upwind.</li> <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>Consider evacuation (or protect in place).</li> <li>Stop leak if safe to do so.</li> <li>Contain spill with sand, earth or vermiculite.</li> <li>Collect recoverable product into labelled containers for recycling.</li> <li>Neutralise/decontaminate residue (see Section 13 for specific agent).</li> <li>Collect solid residues and seal in labelled drums for disposal.</li> <li>Wash area and prevent runoff into drains.</li> <li>After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.</li> <li>If contamination of drains or waterways occurs, advise emergency services.</li> </ul> |

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>Avoid contact with moisture.</li> <li>Avoid contact with incompatible materials.</li> <li><b>When handling, DO NOT eat, drink or smoke.</b></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> <li><b>DO NOT store near acids, or oxidising agents</b></li> <li>No smoking, naked lights, heat or ignition sources.</li> </ul>  |

## Conditions for safe storage, including any incompatibilities

|                         |  |
|-------------------------|--|
| Suitable container      | <ul style="list-style-type: none"> <li><b>DO NOT use aluminium or galvanised containers</b></li> <li>Check regularly for spills and leaks</li> <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 | <ul style="list-style-type: none"> <li>Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.</li> <li>Avoid contact with copper, aluminium and their alloys.</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 | sodium hydroxide | Sodium hydroxide | Not Available | Not Available | 2 mg/m3 | Not Available |

Continued...

## ACS Mine Stabiliser

## Emergency Limits

| Ingredient       | Material name    | TEEL-1        | TEEL-2        | TEEL-3        |
|------------------|------------------|---------------|---------------|---------------|
| sodium hydroxide | Sodium hydroxide | Not Available | Not Available | Not Available |


| Ingredient                                 | Original IDLH        | Revised IDLH  |
|--|----------------------|---------------|
| 2-phosphonobutane-1,2,4-tricarboxylic acid | Not Available        | Not Available |
| sodium hydroxide                           | 10 mg/m <sup>3</sup> | Not Available |

## Occupational Exposure Banding

| Ingredient                                 | Occupational Exposure Band Rating | Occupational Exposure Band Limit                                  |
|--|-----------------------------------|---|
| 2-phosphonobutane-1,2,4-tricarboxylic acid | C                                 | > 0.1 to ≤ milligrams per cubic meter of air (mg/m <sup>3</sup> ) |

**Notes:** Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

## Exposure controls

|  |  |                                 |
|--|--|---------------------------------|
| Appropriate engineering controls   | <p>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:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p>   |                                 |
|  | <p>General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas. 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.</p>  |                                 |
|  | Type of Contaminant:   | Air Speed:                      |
|  | solvent, vapours, degreasing etc., evaporating from tank (in still air).   | 0.25-0.5 m/s<br>(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<br>(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   |                                 |
| <p>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.</p> |  |                                 |
| Personal protection  |   |                                 |
| 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> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when</p>  |                                 |

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making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.

- Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as:

- Excellent when breakthrough time > 480 min
- Good when breakthrough time > 20 min
- Fair when breakthrough time < 20 min
- Poor when glove material degrades

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

**Body protection**

See Other protection below

**Other protection**

- ▶ Overalls.
- ▶ PVC Apron.
- ▶ PVC protective suit may be required if exposure severe.
- ▶ Eyewash unit.
- ▶ Ensure there is ready access to a safety shower.

**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:

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| Material          | CPI |
|-------------------|-----|
| BUTYL             | A   |
| NAT+NEOPR+NITRILE | A   |
| NATURAL RUBBER    | A   |
| NATURAL+NEOPRENE  | A   |
| NEOPRENE          | A   |
| NEOPRENE/NATURAL  | A   |
| NITRILE           | A   |
| NITRILE+PVC       | A   |
| PE                | A   |
| PE/EVAL/PE        | A   |
| PVC               | A   |
| SARANEX-23        | A   |
| SARANEX-23 2-PLY  | A   |
| TEFLON            | A   |
| VITON/CHLOROBUTYL | A   |

\* 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.

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

Continued...

|   |                                  |  |                |
|---|----------------------------------|--|----------------|
| <b>Appearance</b>                                   | Acidic liquid; mixes with water. |  |                |
| <b>Physical state</b>                               | Liquid                           | <b>Relative density (Water = 1)</b>            | 1.1 approx     |
| <b>Odour</b>  | Not Available                    | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available                    | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | 2.5-4.5                          | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | Not Available                    | <b>Viscosity (cSt)</b>                         | Not Available  |
| <b>Initial boiling point and boiling range (°C)</b> | Not Available                    | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | Not Available                    | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Available                    | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Available                    | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Available                    | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Available  |
| <b>Lower Explosive Limit (%)</b>                    | Not Available                    | <b>Volatile Component (%vol)</b>               | Not Available  |
| <b>Vapour pressure (kPa)</b>                        | Not Available                    | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water</b>                          | Miscible                         | <b>pH as a solution (1%)</b>                   | Not Available  |
| <b>Vapour density (Air = 1)</b>                     | Not Available                    | <b>VOC g/L</b>                                 | Not Available  |

## SECTION 10 Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | See section 7                                   |
| <b>Chemical stability</b>                 | ► Contact with alkaline material liberates heat |
| <b>Possibility of hazardous reactions</b> | See section 7                                   |
| <b>Conditions to avoid</b>                | See section 7                                   |
| <b>Incompatible materials</b>             | See section 7                                   |
| <b>Hazardous decomposition products</b>   | See section 5                                   |

## SECTION 11 Toxicological information

### Information on toxicological effects

|                     |   |
|---------------------|---|
| <b>Inhaled</b>      | Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.  |
| <b>Ingestion</b>    | The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident.   |
| <b>Skin Contact</b> | Skin contact with the material may be harmful; systemic effects may result following absorption.<br>The material can produce chemical burns following direct contact with the skin.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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.<br>Entry into the blood-stream, through, for example, cuts, abrasions 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. |
| <b>Eye</b>          | The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.<br>If applied to the eyes, this material causes severe eye damage.<br>Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely.   |
| <b>Chronic</b>      | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.   |

|   |                           |  |
|---|---------------------------|--|
| <b>ACS Mine Stabiliser</b>                        | <b>TOXICITY</b>           | <b>IRRITATION</b>  |
|   | Not Available             | Not Available  |
| <b>2-phosphonobutane-1,2,4-tricarboxylic acid</b> | <b>TOXICITY</b>           | <b>IRRITATION</b>  |
|   | Not Available             | Not Available  |
| <b>sodium hydroxide</b>                           | <b>TOXICITY</b>           | <b>IRRITATION</b>  |
|   | ~500 mg/kg <sup>[2]</sup> | Eye (rabbit): 0.05 mg/24h SEVERE                         |
|   |                           | Eye (rabbit): 1 mg/24h SEVERE                            |
|   |                           | Eye (rabbit): 1 mg/30s rinsed-SEVERE                     |
|   |                           | Eye: adverse effect observed (irritating) <sup>[1]</sup> |
|   |                           | Skin (rabbit): 500 mg/24h SEVERE                         |



## ACS Mine Stabiliser

Skin: adverse effect observed (corrosive)<sup>[1]</sup>

**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

## 2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

\* Van Waters and Rogers Ten male rats each received a single dose of 10 - 30 ml of the potassium salt per gavage. The animals were observed for mortality and clinical signs through day 14. A gross pathological examination was performed on animals which died during the observation period or were killed after termination of the study. Signs of intoxication were ruffle fur, decreased motility, prone position, accelerated and irregular breathing, cyanosis and after 24 hours diarrhoea. The section of the animals which died revealed a diffuse reddening of the mucosa of the stomach and intestine. For male and female rats a LD50 = 20.1 ml/kg bw (ca. 8300 mg/kg bw) was found. Five male and female rats were exposed for 4 hours to the test substance in analysed concentrations of 800, 1479, 1979 mg/m<sup>3</sup> air. After 7 days of observations, no mortality occurred, no clinical symptoms were observed and no significant difference was found in haematological parameters which were examined before and after exposure. The LC50 can be estimated as >1979 mg/m<sup>3</sup>. 1979 mg/m<sup>3</sup> was the highest concentration that could technically be achieved. Following the mentioned results, the tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate is not to be classified as harmful via inhalation as at the highest achievable concentration (1979 mg/m<sup>3</sup>) no clinical symptoms were observed and no significant difference was found in haematological parameters which were examined before and after exposure. A 32.6 % aqueous solution (4000 mg/kg bw) of tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate was examined for acute dermal toxicity. 5 male rats and 5 female rats were observed for 14 days after dermal application of the test substance. No mortality occurred during the study time. The LD50 (rat, oral) was therefore estimated as > 1300 mg/kg based on active ingredient of a 32.6 % aqueous solution of tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate. No systemic clinical symptoms or local skin changes were observed. Minor changes were observed in body weight of female rats and no influence was observed in the growing development of the male rats. In a pathological examination of the study- rats at the end of the study, it was found that one male rat had a brighter (paler) liver with stains and another male rat had in addition a brighter kidney, two female rats, had also a brighter liver. Following the mentioned results, tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate is not to be classified as an acute toxic substance. Irritation:

### Skin

The test item was applied at a 100% concentration, i.e. 25 mg per insert. (plus 50 µl 0.9% NaCl to moisten and ensure good contact with the skin). The results show that no corrosive property of the test item was determined by the assay used. Eye: An in vitro study for assessing ocular irritation of compounds using a human epithelial corneal cell model was performed. The results show that tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate is predicted as non-irritant under the conditions of this test method. Sensitisation: The skin sensitisation effect of tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate was examined in guinea pigs by a Guinea Pig Maximisation Test (GPMT) according to Magnusson and Kligman. No skin reaction was observed in the treated group after the challenge test compared to the controls. Moreover, the test animals body weight development was examined and they were observed for clinical symptoms. No difference was exhibited between the treated and the control groups. Therefore, it can be concluded that under the test conditions, the test substance tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate, is not a potential skin sensitiser. Repeat dose toxicity: oral Doses of up to 5000 ppm tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate applied over 3 months were tolerated without any effects. The NOAEL of the tetrasodium hydrogen 2-phosphonatobutane-1,2,4-tricarboxylate is equal or higher than 5000 ppm (equivalent to about 424 mg/kg bw for male rats and 632 mg/kg bw for female rats). Genetic toxicity: in vitro A 45-50% (w/w) solution of 2-phosphonobutane-1,2,4-tricarboxylic acid in water was found to be non-mutagenic under test conditions. Toxicity to reproduction: The available information on toxicity gave no evidence of damage in doses up to 375 mg/kg body weight. There is no evidence of embryo-toxicity, teratogenicity or genotoxicity. Based on the available data on toxicity and the data on occupational exposure and exposure of the general population, 2-phosphonobutane-1,2,4-tricarboxylic acid is of low concern." Development toxicity/ teratogenicity After oral application of 2-phosphonobutane-1,2,4-tricarboxylic acid up to maximal dosage of 1000 mg/kg no signs of maternal toxicity were found (by means of death, weight loss, changes in appearance and behaviour). Moreover, female mother rats were proved later to be fertile. No influence was observed in embryo and foetus development (resorption, placenta weight, any skeletal and internal malformation). The NOEL value for these effects is therefore determined as 1000 mg/kg bw/day. Under the experimental conditions, the test item is considered to have no maternal and embryonic toxic effects and no teratogenicity effects in rats. REACH Dossier

### For acid mists, aerosols, vapours

Test results 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 airway from direct exposure to inhaled acidic mists (which also protects the stomach lining from the hydrochloric acid secreted there).

### For ATMP (aminotris(methylenephosphonic acid)) and its salts:

ATMP acid, the monosodium salt and hexasodium salts cause serious eye irritation, while the disodium to pentasodium salts do not cause eye irritation. The low pH would predict that ATMP acid should be severely irritant or corrosive to skin as well as eyes.

Acute toxicity: In animals, ATMP has low acute toxicity.

Sensitisation: Based on animal data and human exposure reports, ATMP is not classified with respect to skin sensitization.

Toxicity after repeated exposure: Not classified.

Genetic toxicity / mutation-causing potential: ATMP and its salts do not cause genetic toxicity or mutations.

Cancer-causing potential: ATMP sodium salts and the acid are not expected to cause cancer.

Reproductive toxicity: Based on animal testing, ATMP and its salts do not cause reproductive toxicity.

Animal testing to date have not shown phosphonic acids or their salts to induce skin sensitisation. However, testing has been incomplete.

<

for 2-phosphonobutane-1,2,4-tricarboxylic acid (PBTC)

The substance has low acute toxicity. It produced negative results in two Ames tests one in vitro chromosomal aberration test. The NOAEL for repeated dose toxicity is 375 mg/kg body weight and no embryotoxicity or teratogenicity was recorded up to a dose of 1000 mg/kg. An estimated dose of low concern (EDLC) of 3.75 mg/kg was derived.

The highest aquatic local PEC due to its use as additive in cooling waters was estimated to be 10 - 100 µg/L.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

## SODIUM HYDROXIDE

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

## 2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID & SODIUM HYDROXIDE

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.



## ACS Mine Stabiliser

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| 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

| ACS Mine Stabiliser                        | Endpoint      | Test Duration (hr) | Species                       | Value         | Source        |
|--|---------------|--------------------|-------------------------------|---------------|---------------|
|  | Not Available | Not Available      | Not Available                 | Not Available | Not Available |
| 2-phosphonobutane-1,2,4-tricarboxylic acid | Endpoint      | Test Duration (hr) | Species                       | Value         | Source        |
|  | LC50          | 96                 | Fish                          | >1-42mg/L     | 2             |
|  | EC50          | 48                 | Crustacea                     | >1-71mg/L     | 2             |
|  | EC50          | 72                 | Algae or other aquatic plants | >1-81mg/L     | 2             |
|  | NOEC          | 336                | Fish                          | >=1-42mg/L    | 2             |
| sodium hydroxide                           | Endpoint      | Test Duration (hr) | Species                       | Value         | Source        |
|  | LC50          | 96                 | Fish                          | <180mg/L      | 2             |
|  | EC50          | 48                 | Crustacea                     | 40.4mg/L      | 2             |

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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

Prevent, by any means available, spillage from entering drains or water courses.

**DO NOT** discharge into sewer or waterways.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## Persistence and degradability

| Ingredient                                 | Persistence: Water/Soil | Persistence: Air |
|--|-------------------------|------------------|
| 2-phosphonobutane-1,2,4-tricarboxylic acid | LOW                     | LOW              |
| sodium hydroxide                           | LOW                     | LOW              |

## Bioaccumulative potential

| Ingredient                                 | Bioaccumulation        |
|--|------------------------|
| 2-phosphonobutane-1,2,4-tricarboxylic acid | LOW (LogKOW = -1.359)  |
| sodium hydroxide                           | LOW (LogKOW = -3.8796) |

## Mobility in soil

| Ingredient                                 | Mobility         |
|--|------------------|
| 2-phosphonobutane-1,2,4-tricarboxylic acid | LOW (KOC = 846)  |
| sodium hydroxide                           | LOW (KOC = 14.3) |


## SECTION 13 Disposal considerations

## Waste treatment methods

| Product / Packaging disposal | <ul style="list-style-type: none"> <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)**

|                              |  |
|------------------------------|--|
| UN number                    | 1760   |
| UN proper shipping name      | CORROSIVE LIQUID, N.O.S. (contains 2-phosphonobutane-1,2,4-tricarboxylic acid) |
| Transport hazard class(es)   | Class 8  |
|                              | Subrisk Not Applicable   |
| Packing group                | III  |
| Environmental hazard         | Not Applicable   |
| Special precautions for user | Special provisions 223 274   |
|                              | Limited quantity 5 L   |

**Air transport (ICAO-IATA / DGR)**

|                              |  |
|------------------------------|--|
| UN number                    | 1760   |
| UN proper shipping name      | Corrosive liquid, n.o.s. * (contains 2-phosphonobutane-1,2,4-tricarboxylic acid) |
| Transport hazard class(es)   | ICAO/IATA Class 8  |
|                              | ICAO / IATA Subrisk Not Applicable   |
|                              | ERG Code 8L  |
| Packing group                | III  |
| Environmental hazard         | Not Applicable   |
| Special precautions for user | 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)**

|                              |  |
|------------------------------|--|
| UN number                    | 1760   |
| UN proper shipping name      | CORROSIVE LIQUID, N.O.S. (contains 2-phosphonobutane-1,2,4-tricarboxylic acid) |
| Transport hazard class(es)   | IMDG Class 8   |
|                              | IMDG Subrisk Not Applicable  |
| Packing group                | III  |
| Environmental hazard         | Not Applicable   |
| Special precautions for user | EMS Number F-A , S-B   |
|                              | Special provisions 223 274   |
|                              | Limited Quantities 5 L   |

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 Regulatory information****Safety, health and environmental regulations / legislation specific for the substance or mixture****2-phosphonobutane-1,2,4-tricarboxylic acid is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

**sodium hydroxide 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 10 / Appendix C

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) -  
 Schedule 5  
 Australian Inventory of Industrial Chemicals (AIIC)

Continued...

## ACS Mine Stabiliser

## National Inventory Status

| National Inventory             | Status   |
|--------------------------------|--|
| Australia - AIIC               | Yes  |
| Australia - Non-Industrial Use | No (2-phosphonobutane-1,2,4-tricarboxylic acid; sodium hydroxide)  |
| Canada - DSL                   | Yes  |
| Canada - NDSL                  | No (2-phosphonobutane-1,2,4-tricarboxylic acid; sodium hydroxide)  |
| China - IECSC                  | Yes  |
| Europe - EINEC / ELINCS / NLP  | Yes  |
| Japan - ENCS                   | Yes  |
| Korea - KECI                   | Yes  |
| New Zealand - NZIoC            | Yes  |
| Philippines - PICCS            | Yes  |
| USA - TSCA                     | Yes  |
| Taiwan - TCSI                  | Yes  |
| Mexico - INSQ                  | Yes  |
| Vietnam - NCI                  | Yes  |
| Russia - ARIPS                 | Yes  |
| <b>Legend:</b>                 | Yes = All CAS declared ingredients are on the inventory<br>No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) |

## SECTION 16 Other information

|                      |            |
|----------------------|------------|
| <b>Revision Date</b> | 01/11/2019 |
| <b>Initial Date</b>  | 24/01/2014 |

## SDS Version Summary

| Version | Issue Date | Sections Updated   |
|---------|------------|--|
| 2.1.1.1 | 24/01/2014 | Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Advice to Doctor, Appearance, Chronic Health, Classification, Disposal, Engineering Control, Environmental, Exposure Standard, Fire Fighter (extinguishing media), Fire Fighter (fire/explosion hazard), Fire Fighter (fire fighting), Fire Fighter (fire incompatibility), First Aid (eye), First Aid (inhaled), First Aid (skin), First Aid (swallowed), Handling Procedure, Instability Condition, Personal Protection (other), Personal Protection (eye), Personal Protection (hands/feet), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Transport, Use |
| 4.1.1.1 | 01/11/2019 | One-off system update. NOTE: This may or may not change the GHS classification   |

## 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  
 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

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