SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>Parex Historic Mortar KL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Not Available</td>
</tr>
<tr>
<td>Other means of</td>
<td>Not Available</td>
</tr>
<tr>
<td>identification</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Relevant identified uses</th>
<th>Use according to manufacturer’s directions. Mortar suitable for dense masonry. Add water to obtain the required consistency.</th>
</tr>
</thead>
</table>

Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Registered company name</th>
<th>Parex Group (ParexGroup)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>67 Elizabeth Street Wetherill Park NSW 2164 Australia</td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 2 9616 3000</td>
</tr>
<tr>
<td>Fax</td>
<td>+61 2 9725 5551</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.davco.com.au">www.davco.com.au</a></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:marketing@davco.com.au">marketing@davco.com.au</a></td>
</tr>
</tbody>
</table>

Emergency telephone number

| Association / Organisation     | Not Available            |
| Emergency telephone numbers    | 1800 039 008              |
| Other emergency telephone      | Not Available            |
| numbers                        |                          |

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

| HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code. |

<table>
<thead>
<tr>
<th>CHEMWATCH HAZARD RATINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
</tr>
<tr>
<td>Toxicity</td>
</tr>
<tr>
<td>Body Contact</td>
</tr>
<tr>
<td>Reactivity</td>
</tr>
<tr>
<td>Chronic</td>
</tr>
</tbody>
</table>

| Poisons Schedule         | Not Applicable            |
| Classification [1]       | Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1 |


Label elements

<table>
<thead>
<tr>
<th>Hazard pictogram(s)</th>
<th><img src="image" alt="Hazard pictogram" /></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SIGNAL WORD</th>
<th>DANGER</th>
</tr>
</thead>
</table>

Hazard statement(s)

| H314                   | Causes severe skin burns and eye damage. |

Supplementary statement(s)

| Not Applicable         |                                          |
CLP classification (additional)
Not Applicable

Precautionary statement(s) Prevention
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P330 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.
- P363 Wash contaminated clothing before reuse.

Precautionary statement(s) Storage
- P405 Store locked up.

Precautionary statement(s) Disposal
- P501 Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances
See section below for composition of Mixtures

Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>% [Weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>14808-60-7</td>
<td>60-100</td>
<td>graded sand</td>
</tr>
<tr>
<td>65996-69-2</td>
<td>20-40</td>
<td>blast furnace slag</td>
</tr>
<tr>
<td>1305-62-0</td>
<td>5-10</td>
<td>hydrated lime</td>
</tr>
<tr>
<td>Not Available</td>
<td>0-5</td>
<td>aluminate cement</td>
</tr>
<tr>
<td>Not Available</td>
<td>&lt;1</td>
<td>silane based additive</td>
</tr>
</tbody>
</table>

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact
If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
- 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact
If skin or hair contact occurs:
- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

Inhalation
- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- 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.
- Transport to hospital, or doctor.

Ingestion
- For advice, contact a Poisons Information Centre or a doctor at once.
- 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 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.
- Neutalising 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:
  - Withdraw 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**
- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

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

| Fire Incompatibility | None known. |

**Advice for firefighters**

**Fire Fighting**
- When silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles.
- When heated to extreme temperatures, (>1700 deg.C) amorphous silica can fuse.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

**Fire/Explosion Hazard**
- Non combustible.
- Not considered a significant fire risk, however containers may burn.
- silicon dioxide (SiO2)
  - When aluminium oxide dust is dispersed in air, firefighters should wear protection against inhalation of dust particles, which can also contain hazardous substances from the fire absorbed on the alumina particles.
  - May emit poisonous fumes.
  - May emit corrosive fumes.

**HAZCHEM**
- Not Applicable

**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**
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Use dry clean-up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.
- Moderate hazard.
  - **CAUTION:** Advise personnel in area.
  - Alert Emergency Services and tell them location and nature of hazard.
  - Control personal contact by wearing protective clothing.
  - Prevent, by any means available, spillage from entering drains or water courses.
  - Recover product whenever possible.

**Major Spills**
- **IF DRY:** Use dry clean-up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. **IF WET:** Vacuum/shovel up and place in labelled containers for disposal.
- **ALWAYS:** Wash area down with large amounts of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise Emergency Services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.
Precautions for safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

For major quantities:
- Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).
- Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

Conditions for safe storage, including any incompatibilities

Suitable container
- Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

Storage incompatibility
- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- Avoid contact with copper, aluminium and their alloys.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>Material name</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure Standards</td>
<td>graded sand</td>
<td>Silica - Crystalline: Quartz (respirable dust)</td>
<td>/ 0.1 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Australia Exposure Standards</td>
<td>graded sand</td>
<td>Quartz (respirable dust)</td>
<td>/ 0.1 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Australia Exposure Standards</td>
<td>hydrated lime</td>
<td>Calcium hydroxide</td>
<td>5 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

#### EMERGENCY LIMITS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>graded sand</td>
<td>Silica, crystalline-quartz: (Silicon dioxide)</td>
<td>0.075 mg/m³</td>
<td>30 mg/m³</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td>hydrated lime</td>
<td>Calcium hydroxide</td>
<td>1 mg/m³</td>
<td>240 mg/m³</td>
<td>1,500 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>graded sand</td>
<td>N.E. mg/m³ / N.E. ppm</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>blast furnace slag</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>hydrated lime</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>aluminate cement</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>silane based additive</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

#### MATERIAL DATA

For calcium hydroxide:

In the absence of reports of adverse effects from exposure and the recognised lesser alkalinity of the alkaline earths compared with the alkali hydroxides the relatively high value of TLV-TWA is recommended. This value corresponds in total alkalinity to 5 mg/m³ of sodium hydroxide or 2.5 times the TLV-TWA of sodium hydroxide.

For aluminium oxide:

The experimental and clinical data indicate that aluminium oxide acts as an "inert" material when inhaled and seems to have little effect on the lungs nor does it produce significant organic disease or toxic effects when exposures are kept under reasonable control.

[Documentation of the Threshold Limit Values], ACGIH, Sixth Edition

The concentration of dust, for application of respirable dust limits, is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative log-normal function with a median aerodynamic diameter of 4.0 um (+-) 0.3 um and with a geometric standard deviation of 1.5 um (+-) 0.1 um, i.e. generally less than 5 um. Because the margin of safety of the quartz TLV is not known with certainty and given the associated link between silicosis and lung cancer it is recommended that quartz concentrations be maintained as far below the TLV as prudent practices will allow.

Exposure to respirable crystalline silicas (RCSs) represents a significant hazard to workers, particularly those employed in the construction industry where respirable dusts of cement and concrete are common. Cutting, grinding and other high speed processes, involving their finished products, may further result in dusty atmospheres. Bricks are also a potential source of RCSs under such circumstances.

It is estimated that half of the occupations, involved in construction work, are exposed to levels of RCSs, higher than the current allowable limits. Beaudoit et al: Journal of Occupational and...
Environmental Hygiene 10: 71-77; 2013

The TLV is based on the exposures to aluminium chloride and the amount of hydrolysed acid and the corresponding acid TLV to provide the same degree of freedom from irritation. Workers chronically exposed to aluminium dusts and fumes have developed severe pulmonary reactions including fibrosis, emphysema and pneumothorax. A much rarer encephalopathy has also been described.

For amorphous crystalline silica (precipitated silicic acid):

Amorphous crystalline silica shows little potential for producing adverse effects on the lung and exposure standards should reflect a particulate of low intrinsic toxicity. Mixtures of amorphous silicas/ diatomaceous earth and crystalline silica should be monitored as if they comprise only the crystalline forms.

The dusts from precipitated silica and silica gel produce little adverse effect on pulmonary functions and are not known to produce significant disease or toxic effect.

IARC has classified silica, amorphous as Group 3: NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

### Exposure controls

<table>
<thead>
<tr>
<th>Engineering controls</th>
<th>Type of Contaminant:</th>
<th>Air Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>direct spray, spray painting in shallow booths, drum filling, conveyor loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td>
<td>1-2.5 m/s (200-500 f/min.)</td>
</tr>
<tr>
<td></td>
<td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)</td>
<td>2.5-10 m/s (500-2000 f/min.)</td>
</tr>
</tbody>
</table>

Within each range the appropriate value depends on:

<table>
<thead>
<tr>
<th>Lower end of the range</th>
<th>Upper end of the range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Room air currents minimal or favourable to capture</td>
<td>1: Disturbing room air currents</td>
</tr>
<tr>
<td>2: Contaminants of low toxicity or of nuisance value only</td>
<td>2: Contaminants of high toxicity</td>
</tr>
<tr>
<td>3: Intermittent, low production.</td>
<td>3: High production, heavy use</td>
</tr>
<tr>
<td>4: Large hood or large air mass in motion</td>
<td>4: Small hood-local control only</td>
</tr>
</tbody>
</table>

### Personal protection

- **Chemical goggles.**
- **Full face shield may be required for supplementary but never for primary protection of eyes.**
- **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].

### Skin protection

See Hand protection below

### Eye and face protection

- **Chemical goggles.**
- **Full face shield may be required for supplementary but never for primary protection of eyes.**
- **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].

### Hands/feet protection

**NOTE:**

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- **Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.**

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 be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when 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 moisturizer 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

**Version No:**

**Chemwatch:** 82-1666

**Print Date:** 06/07/2017
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.
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 often likely to give short duration protection and would normally be just for single use applications, then disposed off.
> 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.
- Neoprene rubber gloves
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
- polychloroprene.
- nitrite rubber.
- butyl rubber.
- fluoroacrylate.
- polyvinyl chloride.
Gloves should be examined for wear and/or degradation constantly.

### Body protection
See Other protection below

### Other protection
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

### Thermal hazards
Not Available

---

**Recommended material(s)**

<table>
<thead>
<tr>
<th>GLOVE SELECTION INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glove selection is based on a modified presentation of the:</td>
</tr>
<tr>
<td>&quot;Forberg Clothing Performance Index&quot;.</td>
</tr>
<tr>
<td>The effect(s) of the following substance(s) are taken into account in the computer-generated selection:</td>
</tr>
<tr>
<td>Parex Historic Mortar KL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATURAL RUBBER</td>
<td>C</td>
</tr>
<tr>
<td>NATURAL-NEOPRENE</td>
<td>C</td>
</tr>
</tbody>
</table>

* 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.

---

**Respiratory protection**

<table>
<thead>
<tr>
<th>Particulate. (AS/NZS 1716 &amp; 1715, EN 143:2000 &amp; 149:001, ANSI Z88 or national equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Minimum Protection Factor</td>
</tr>
<tr>
<td>------------------------------------</td>
</tr>
<tr>
<td>up to 10 x ES</td>
</tr>
<tr>
<td>up to 50 x ES</td>
</tr>
<tr>
<td>up to 100 x ES</td>
</tr>
<tr>
<td>100+ x ES</td>
</tr>
</tbody>
</table>

* - Negative pressure demand ** - Continuous flow
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)

If inhalation risk above the TLV exists, wear approved dust respirator. Use respirators with protection factors appropriate for the exposure level.

- Up to 5 X TLV, use valveless mask type; up to 10 X TLV, use 1/2 mask dust respirator
- Up to 50 X TLV, use full face dust respirator or demand type C air supplied respirator
- Up to 500 X TLV, use powered air-purifying dust respirator or a Type C pressure demand supplied-air respirator
- Over 500 X TLV, use self-contained breathing apparatus with positive pressure mode or a combination respirator with a Type C positive pressure supplied-air full-face respirator and an auxiliary self-contained breathing apparatus operated in pressure demand or other positive pressure mode
- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

---

### Notes:
- Eye wash unit.
- Skin cleansing cream.
- Barrier cream.
- P.V.C. apron.
- Overalls.

---

Continued...
## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
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<tr>
<td>Physical state</td>
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<tr>
<td>Odour</td>
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<tr>
<td>Odour threshold</td>
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<tr>
<td>pH (as supplied)</td>
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<tr>
<td>Melting point / freezing point (°C)</td>
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<td>Initial boiling point and boiling range (°C)</td>
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<td>Flash point (°C)</td>
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<td>Evaporation rate</td>
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<tr>
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<tr>
<td>Upper Explosive Limit (%)</td>
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<tr>
<td>Lower Explosive Limit (%)</td>
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<td>Vapour pressure (kPa)</td>
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<td>VOC g/L (SCAQMD Method 304-91)</td>
<td>4g/L</td>
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</table>

## SECTION 10 STABILITY AND REACTIVITY

### Reactivity
- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

### Chemical stability
- Product is considered stable.

### 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
Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
- If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
- Effects on lungs are significantly enhanced in the presence of respirable particles. Overexposure to respirable dust may produce wheezing, coughing and breathing difficulties leading to or symptomatic of impaired respiratory function.

#### Ingestion
The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Accidental ingestion of the material may be damaging to the health of the individual.
- Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract

#### Skin Contact
The material can produce chemical burns following direct contact with the skin.
- Contact with aluminas (aluminium oxides) may produce a form of irritant dermatitis accompanied by pruritus.
- Though considered non-harmful, slight irritation may result from contact because of the abrasive nature of the aluminium oxide particles.
- Open cuts, abraded or irritated skin should not be exposed to this material

#### Eye
The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
- When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

#### Chronic
Repeated or prolonged exposure to corrosives 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.
- On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.
- The synthetic, amorphous silicas are believed to represent a very greatly reduced silicosis hazard compared to crystalline silicas and are considered to be nuisance dusts.
- When heated to high temperature and a long time, amorphous silica can produce crystalline silica on cooling. Inhalation of dusts containing crystalline silicas
may lead to silicosis, a disabling pulmonary fibrosis that may take years to develop. Discrepancies between various studies showing that fibrosis associated with chronic exposure to amorphous silica and those that do not may be explained by assuming that diatomaceous earth (a non-synthetic silica commonly used in industry) is either weakly fibrogenic or nonfibrogenic and that fibrosis is due to contamination by crystalline silica content.

### Parex Historic Mortar KL

<table>
<thead>
<tr>
<th>Substance</th>
<th>TOXICITY</th>
<th>IRRITATION</th>
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</thead>
<tbody>
<tr>
<td>graded sand</td>
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<tr>
<td>blast furnace slag</td>
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<td>Not Available</td>
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<tr>
<td></td>
<td>Oral (rat) LD50: &gt;2000 mg/kg&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>hydrated lime</td>
<td>Dermal (rabbit) LD50: &gt;2500 mg/kg&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Eye (rabbit): 10 mg - SEVERE</td>
</tr>
<tr>
<td></td>
<td>Oral (rat) LD50: 7340 mg/kg&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

**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.

**Hydrated Lime**

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

The material may produce respiratory tract irritation. Symptoms of pulmonary irritation may include coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and a burning sensation.

Unlike most organs, the lung can respond to a chemical insult or a chemical agent, by first removing or neutralising the irritant and then repairing the damage (inflammation of the lungs may be a consequence).

The repair process (which initially developed to protect mammalian lungs from foreign matter and antigens) may, however, cause further damage to the lungs (fibrosis for example) when activated by hazardous chemicals. Often, this results in an impairment of gas exchange, the primary function of the lungs. Therefore prolonged exposure to respiratory irritants may cause sustained breathing difficulties.

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. 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.

hydrated lime, as calcium hydroxide.

**Parex Historic Mortar KL & Graded Sand & Blast Furnace Slag & Hydrated Lime**

No significant acute toxicological data identified in literature search.

**Parex Historic Mortar KL & Blast Furnace Slag & HYDRATED LIME**

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms. There is no evidence of cancer or other long-term respiratory health effects (for example, silicosis) in workers employed in the manufacture of SAS. Repeated exposure (without personal protection) may cause mechanical irritation of the eye and drying/cracking of the skin. SAS has no acute intrinsic toxicity by inhalation. Adverse effects, including suffocation, that have been reported were caused by the presence of high numbers of respirable particles generated to meet the required test atmosphere. These results are not representative of exposure to commercial SASs and should not be used for human risk assessment. Though repeated exposure of the skin may cause dryness and cracking, SAS is not a skin or eye irritant, and it is not a sensitiser.

Repeate dose and chronic toxicity studies confirm the absence of toxicity when SAS is swallowed or upon skin contact.

For silica amorphous:

When experimental animals inhale synthetic amorphous silica (SAS) dust, it dissolves in the lung fluid and is rapidly eliminated. If swallowed, the vast majority of SAS is excreted in the faeces and there is little accumulation in the body. Following absorption across the gut, SAS is eliminated via urine without modification in animals and humans. SAS is not expected to be broken down (metabolised) in mammals.

After ingestion, there is limited accumulation of SAS in body tissues and rapid elimination occurs. Intestinal absorption has not been calculated, but appears to be insignificant in animals and humans. SASs injected subcutaneously are subjected to rapid dissolution and removal. There is no indication of metabolism of SAS in animals or humans based on chemical structure and available data. In contrast to crystalline silica, SAS is soluble in physiological media and the soluble chemical species that are formed are eliminated via the urinary tract without modification.

Both the mammalian and environmental toxicology of SAS is significantly influenced by the physical and chemical properties, particularly those of solubility and particle size. SAS has no acute intrinsic toxicity by inhalation. Adverse effects, including suffocation, that have been reported were caused by the presence of high numbers of respirable particles generated to meet the required test atmosphere. These results are not representative of exposure to commercial SASs and should not be used for human risk assessment. Though repeated exposure of the skin may cause dryness and cracking, SAS is not a skin or eye irritant, and it is not a sensitiser.

Repeated-dose and chronic toxicity studies confirm the absence of toxicity when SAS is swallowed or upon skin contact.

Long-term inhalation of SAS caused some adverse effects in animals (increases in lung inflammation, cell injury and lung collagen content), all of which subsided after exposure.

Numerous repeated-dose, subchronic and chronic inhalation toxicity studies have been conducted with SAS in a number of species, at airborne concentrations ranging from 0.5 mg/m³ to 150 mg/m³. Lowest observed adverse effect levels (LOAELs) were typically in the range of 1 to 50 mg/m³. When available, the no-observed adverse effect levels (NOAELs) were between 0.5 and 10 mg/m³. The difference in values may be explained by different particle size, and therefore the number of particles administered per unit dose. In general, as particle size decreases so does the NOAEL/LOAEL.

Neither inhalation nor oral administration caused neoplasms (tumours). SAS is not mutagenic in vitro. No genotoxicity was detected in vivo. ASS does not impair development of the foetus. Fertility was not specifically studied, but the reproductive organs in long-term studies were not affected.

In humans, SAS is essentially non-toxic by mouth, skin or eyes, and by inhalation. Epidemiological studies show little evidence of adverse health effects due to SAS. Repeated exposure (without personal protection) may cause mechanical irritation of the eye and drying/cracking of the skin. There is no evidence of cancer or other long-term respiratory health effects (for example, silicosis) in workers employed in the manufacture of SAS.

Respiratory symptoms in SAS workers have been shown to correlate with smoking but not with SAS exposure, while serial pulmonary function values and chest radiographs are not adversely affected by long term exposure to SAS. Continued...
For silica:

The literature on the fate of silica in the environment concerns dissolved silica in the aquatic environment, irrespective of its origin (man-made or natural), or structure (crystalline or amorphous).

Indeed, once released and dissolved into the environment no distinction can be made between the initial forms of silica. At normal environmental pH, dissolved silica exists exclusively as monomeric silicic acid (H4SiO4). At pH 9.4 the solubility of amorphous silica is about 120 mg SiO2/l. Quartz has a solubility of only 6 mg/l, but its rate of dissolution is so slow at ordinary temperature and pressure that the solubility of amorphous silica represents the upper limit of dissolved silica concentration in natural waters. Moreover, silicic acid is the bioavailable form for aquatic organisms and it plays an important role in the biogeochemical cycle of Si, particularly in the oceans.

In the oceans, the transfer of dissolved silica from the marine hydrosphere to the biosphere initiates the global biological silica cycle. Marine organisms such as diatoms, silicoflagellates and radiolarians build up their skeletons by taking up silicic acid from seawater. After these organisms die, the biogenic silica accumulated in them partly dissolves. The portion of the biogenic silica that does not dissolve settles and ultimately reaches the sediment. The transformation of opal (amorphous biogenic silica) deposits in sediments through diagenetic processes allows silica to re-enter the geological cycle. Silica is liable between the water and sediment interface.

Ecotoxicity:
Fish LC50 (96 h): Brachydanio rerio >10000 mg/l; zebrafish >10000 mg/l
Daphnia magna EC50 (24 h): >1000 mg/l; LC50 96 h): >10000 mg/l

For silica amorphous:
Amorphous silica is chemically and biologically inert. It is not biodegradable. Due to its insolubility in water there is a separation at every filtration and sedimentation process.

Crystalline and/or amorphous silicas are ubiquitous on the earth in soils and sediments, and in living organisms (e.g. diatoms), but only the dissolved form is bioavailable. On a global scale, the level of man-made synthetic amorphous silica (SAS) represents up to 2.4% of the dissolved silica naturally present in the aquatic environment. The rate of SAS released into the environment during the product life cycle is negligible in comparison with the natural flux of silica in the environment.

Un treated SASs have a relatively low water solubility of 1.91 to 2.51 mmoll (114 - 151 mg/l) and an extremely low vapour pressure (e.g. <10^-3 Pa at 20°C for Aerosil R974). On the basis of these properties it is expected that SAS released into the environment will be distributed mainly into soil/sediment, slightly into water, and probably not at all in air.

With surface-treated SASs, the addition of organosilicon compounds increases the hydrophobicity. Consequently, the water solubility is lower than that of untreated silica. The vapour pressure remains extremely low. Due to the presence of organic substances such as surfactants, salts, acids and alkalis in the environment, it is expected that surface-treated silica will be wetted and then adsorbed onto soils or sediments.

SAS is regarded as an inert substance and is not expected to undergo any transformation in the atmospheric or terrestrial compartment, apart from dissolution by water. Biodegradability in sewage treatment plant or in surface water is not applicable to inorganic substances like SAS. Therefore the biodegradation endpoint has limited relevance for SAS. In surface modified SASs, the most common treating agents are organosilicon compounds and these generally represent less than 5% of the material. Biodegradation in sewage treatment plant or in surface water is not expected. Some biodegradation in soil may occur by analogy with the behaviour of linear polydimethylsiloxane in this compartment.

Ecotoxicity:
Based on available data, SAS is not toxic to environmental organisms (apart from physical desiccation in insects). SAS presents a low risk for adverse effects to the environment. When hydrophobic SASs (Aerosil 200 and Ultrasil VN3; purity 100% and 98%, respectively), were tested for their acute toxicity to fish and crustaceans, the LC50 and EC50 values were higher than 10,000 mg/l and 1,000 mg/l, respectively.

The zebra fish (Brachydanio rerio) test was performed with SAS in suspension, due to the insolubility of the SAS. No mortality was observed for the fish after 96 hours of exposure at 1,000 mg/l and 10,000 mg/l. The test media remained turbid throughout the test, indicating that the limit of solubility of the product was exceeded.

With the water flea (Daphnia magna), SAS suspensions exceeding the limit of solubility were tested; some immobilisation was observed. However, no significant immobilisation was observed when a solution filtered through microfibre glass filter was tested. The observed effects were likely caused by physical hardening of the Daphnia due to the presence of undissolved particles. A surface-treated SAS (Aerosil R974, 99.9% pure) was tested on fish and crustaceans. The LC50 to fish and EC50 to Daphnia were found to be higher than 10,000 mg/l and 1,000 mg/l, respectively.

The EC50 to algae was found to be higher than 10,000 mg/l filtered suspension. The actual dissolved concentrations were not determined. There was no inhibition of the biomass or of the growth rate with the 10,000 mg/l filtered suspension.

The antibacterial effect of pressed and unpressed SAS. Gram-positive micro-organisms were somewhat more resistant. In addition, the tests demonstrated...
that survival of bacteria was shorter in unpressed than in pressed SAS. For aluminium and its compounds and salts:

Despite its prevalence in the environment, no known form of life uses aluminium salts metabolically. In keeping with its pervasive nature, aluminium is well tolerated by plants and animals. Owing to their prevalence, potential beneficial (or otherwise) biological roles of aluminium compounds are of continuing interest.

Environmental fate:

Aluminium occurs in the environment in the form of silicates, oxides and hydroxides, combined with other elements such as sodium, fluoride and arsenic complexes with organic matter. Aluminium is very mobile in the environment and is distributed in many compartments. A large fraction of aluminium is released as aluminium as a transportable solution. Mobilisation of aluminium by acid rain results in aluminium becoming available for plant uptake. As an element, aluminium cannot be degraded in the environment, but may undergo various precipitation or ligand exchange reactions. Aluminium in compounds has only one oxidation state (+3), and would not undergo oxidation-reduction reactions under environmental conditions. Aluminium can be complexed by various ligands present in the environment (e.g., fulvic and humic acids). The solubility of aluminium in the environment will depend on the ligands present and the pH.

The trivalent aluminium ion is surrounded by six water molecules in solution. The hydrated aluminium ion, \([\text{Al}(\text{H}_2\text{O})_6]^{3+}\), undergoes hydrolysis, in which a stepwise deprotonation of the coordinated water ligands forms bound hydroxide ligands (e.g., \([\text{Al}(\text{H}_2\text{O})_2(\text{OH})_2]^{-}\)). The solubility of aluminium in water is pH dependent. The hydrated trivalent aluminium ion is the predominant form at pH levels below 4. Between pH 5 and 6, the predominant hydrolysis products are \([\text{Al}(\text{OH})_2]^+\) and \([\text{Al}(\text{OH})_2]^-\), while the solid \(\text{Al(OH)}_3\) is most prevalent between pH 5.2 and 8.8. The soluble species \(\text{Al(OH)}_2^-\) is the predominant species above pH 9, and is the only species present above pH 10. Polymeric aluminium hydroxides appear between pH 4.7 and 10.5, and increase in size until they are transformed into colloidal particles of amorphous \(\text{Al(OH)}_3\), which crystallise to gibbsite in acid waters. Polymerisation is affected by the presence of dissolved silica; when enough silica is present, aluminium is precipitated as poorly crystallised clay mineral species.

Hydroxyaluminium compounds are considered amphoteric (e.g., they can act as both acids and bases in solution). Because of this property, aluminium hydroxides can act as buffers and resist pH changes within the narrow pH range of 4.5.

Monomeric aluminium compounds, typified by aluminium fluoride, chloride, and sulfate, are considered reactive or labile compounds, whereas polymeric aluminium species react much more slowly in the environment. Aluminium has a stronger attraction for fluoride in an acidic environment compared to other inorganic ligands.

The adsorption of aluminium onto clay surfaces can be a significant factor in controlling aluminium mobility in the environment, and these adsorption reactions, measured in one study at pH 3.0-4.1, have been observed to be very rapid. However, clays may act either as a sink or a source for soluble aluminium depending on the degree of aluminium saturation on the clay surface.

Within the pH range of 5-6, aluminium complexes with phosphate and is removed from solution. Because phosphate is a necessary nutrient in ecological systems, this immobilisation of both aluminium and phosphate may result in depleted nutrient states in surface water.

Plant species and cultivars of the same species differ considerably in their ability to take up and translocate aluminium to above-ground parts. Tea leaves may contain very high concentrations of aluminium up to 65,000 mg/kg in old leaves. Other plants that may contain high levels of aluminium include Lycopodium (Lycopodiaceae), a few ferns, Symphytum (Symphytaeae), and Ortites (Proteaceae). Aluminium is often taken up and concentrated in root tissue. In sub-alpine ecosystems, the large root biomass of the Douglas fir, 

the silver maple takes up aluminium and immobilizes it, preventing large accumulation in above-ground tissue. It is unclear to what extent aluminium is taken up in root food crops and leafy vegetables. An uptake factor (concentration of aluminium in the plant/concentration of aluminium in soil) of 0.004 for leafy vegetables and 0.00065 for fruits and tubers has been reported, but the plant and species plant from which these uptake factors were derived are unclear. Based upon these values, however, it is clear that aluminium is not taken up in plants from soil, but is instead biotransformed.

Aluminium concentrations in rainbow trout from an aluminized lake, an untreated lake, and a hatchery were highest in gill tissue and lowest in muscle. Aluminium residue analyses in brook trout have shown that whole-body aluminium content decreases as the fish advance from larvae to juveniles. These results imply that the gill trout begin to decrease their rate of aluminium uptake, to eliminate aluminium at a rate that exceeds uptake, or to maintain approximately the same amount of aluminium while the body mass increases. The decline in whole-body aluminium residues in juvenile brook trout may be related to growth and dilution by edible muscle tissue that accumulated less aluminium than did the other tissues.

The greatest fraction of the gill-associated aluminium was not sorbed to the gill tissue, but to the gill mucus. It is thought that mucus appears to retard aluminium transport from solution to the membrane surface, thus delaying the acute biological response of the fish. It has been reported that concentrations of aluminium in whole-body tissue of the Atlantic salmon exposed to high concentrations of aluminium ranging from 3 ugl (for fish exposed to 33 ugl/L) to 96 ugl (for fish exposed to 264 ugl/L) at pH 5.5. After 60 days of exposure, BCFs ranged from 76 to 190 and were directly related to the aluminium exposure concentration. In acidic waters (pH 4.6-5.3) with low concentrations of calcium (0.5-1.5 mg Ca/L), labile aluminium between 25 and 75 ugl/L is toxic. Because aluminium is toxic to many aquatic species, it is not bioaccumulated to a significant degree (BCF ~300) in most fish and shellfish; therefore, consumption of contaminated fish does not appear to be a significant source of aluminium exposure in humans.

Bioconcentration of aluminium has also been reported for several aquatic invertebrate species. BCF values ranging from 0.13 to 0.5 in the whole-body were reported for the snail.

Biodegradation of aluminium has also been reported for aquatic invertebrates. Aluminium is a gill toxicant to fish, causing both ionoregulatory and respiratory effects. The bioavailability and toxicity of aluminium is generally critical in acid solutions. Aluminium in acid habitats has been observed to be toxic to fish and phytoplankton. Aluminium is generally more toxic over the pH range 4.5-5.4, with a maximum toxicity occurring around pH 5.0-5.2. The inorganic single unit aluminium species (Al(OH)+2+) is thought to be the most toxic. Under very acid conditions, the toxic effects of the high H+ concentration appear to be more important than the effects of low concentrations of aluminium; at approximately neutral pH values, the toxicity of aluminium is greatly reduced. The solubility of aluminium is also enhanced under alkaline conditions, due to its amphoteric character, and some researchers found that the acute toxicity of aluminium increased from pH 7 to pH 9. However, the opposite relationship was found in other studies. The uptake and toxicity of aluminium in freshwater organisms generally decreases with increasing water hardness under acidic, neutral and alkaline conditions. Complexing agents such as fluoride, citrate and humic substances reduce the availability of aluminium to organisms, resulting in lower toxicity. Silicon can also reduce aluminium toxicity to fish.

Drinking Water Standards:
aluminium: 200 µg/L

Potassium: 3.2-4.5 mg/L

Magnesium: 2.5 mg/L

Chloride: 20 mg/L

Sulphate: 250 mg/L

Table 6. Drinking Water Standards for Metal Concentrations

Drinking Water Standards:
aluminium: 200 µg/L

Potassium: 3.2-4.5 mg/L

Magnesium: 2.5 mg/L

Chloride: 20 mg/L

Sulphate: 250 mg/L

Table 6. Drinking Water Standards for Metal Concentrations

 persistence and degradability:

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<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
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Bioaccumulative potential:

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Mobility in soil

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SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

Labels Required

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<th>Marine Pollutant</th>
<th>HAZCHEM</th>
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</table>

Land transport (ADG): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

Air transport (ICAO-IATA / DGR): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

Sea transport (IMDG-Code / GGVSee): **NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

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

**GRADED SAND** (14800-60-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

**BLAST FURNACE SLAG** (65996-69-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Australia Inventory of Chemical Substances (AICS)

**HYDRATED LIME** (1305-62-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)

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<td>Canada - DSL</td>
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<td>China - EINEC / ELINCS / NLP</td>
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<td>Europe - ENCS</td>
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<tr>
<td>Japan - ENCS</td>
<td>N (blast furnace slag; graded sand)</td>
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<tr>
<td>Korea - KEIC</td>
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<tr>
<td>New Zealand - NZIoC</td>
<td>Y</td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>N (blast furnace slag)</td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Legend:**

- Y = All ingredients are on the inventory
- N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

Continued...
SECTION 16 OTHER INFORMATION

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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