



# ALUMINIUM OXIDE, CALCINED 200#

## ALPHA CHEMICALS PTY LTD

Chemwatch Hazard Alert Code: 1

Chemwatch: 12024  
Version No: 5.1.1.1  
Safety Data Sheet according to WHS and ADG requirements

Issue Date: 05/03/2018  
Print Date: 07/08/2020  
S.GHS.AUS.EN

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

#### Product Identifier

|                               |   |
|-------------------------------|---|
| Product name                  | ALUMINIUM OXIDE, CALCINED 200#  |
| Chemical Name                 | aluminium oxide   |
| Synonyms                      | Al <sub>2</sub> O <sub>3</sub> ; calcined aluminas - all alomalux grades ground - unground; aluminium oxide; corundum; alpha-alumina; alumina; gamma-alumina; boehmite; diaspore; Gibbsite; bayerite; Calcined Alumina - Alomalux; Abrasive Grade Alumina Grade A Premalox; P30 Polishing Raelox CL3000 OF2000 Wear; Catalytic Grade SRP-A-2 SRP-A-5 SRP-A-20; SRF-A-22 SRF-A-30 SRF-A-71 DRF-A-90E |
| Chemical formula              | Al <sub>2</sub> O <sub>3</sub>  |
| Other means of identification | Not Available   |
| CAS number                    | 1344-28-1.  |

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

|                          |   |
|--------------------------|---|
| Relevant identified uses | Used as an adsorbent, desiccant, An abrasive in polish; as a filler in paints and varnishes; in the manufacture of alloys, ceramic materials, electrical insulators and resistors, dental cements, glass and steel. Also used in the manufacture of artificial gems, in coatings for metals; as a catalyst for organic chemistry; used in chromatography. |
|--------------------------|---|

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

|                         |   |
|-------------------------|---|
| Registered company name | ALPHA CHEMICALS PTY LTD                         |
| Address                 | 4 ALLEN PLACE WETHERILL PARK NSW 2099 Australia |
| Telephone               | 61 (0)2 9982 4622                               |
| Fax                     | Not Available                                   |
| Website                 | ~   |
| Email                   | shane@alphachem.com.au                          |

#### Emergency telephone number

|                                   |                         |
|-----------------------------------|-------------------------|
| Association / Organisation        | ALPHA CHEMICALS PTY LTD |
| Emergency telephone numbers       | 61 (0)418 237 771       |
| Other emergency telephone numbers | Not Available           |

### SECTION 2 Hazards identification

#### Classification of the substance or mixture

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

#### ChemWatch Hazard Ratings

|              | Min | Max |  |
|--------------|-----|-----|--|
| Flammability | 0   |     |  |
| Toxicity     | 1   |     |  |
| Body Contact | 1   |     |  |
| Reactivity   | 0   |     |  |
| Chronic      | 0   |     |  |

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

|                    |                |
|--------------------|----------------|
| Poisons Schedule   | Not Applicable |
| Classification [1] | Not Applicable |

#### Label elements

|                     |                |
|---------------------|----------------|
| Hazard pictogram(s) | Not Applicable |
| Signal word         | Not Applicable |

**Hazard statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 Composition / information on ingredients****Substances**

| CAS No        | %[weight] | Name                   |
|---------------|-----------|------------------------|
| 1344-28-1.    | >99.9     | <u>aluminium oxide</u> |
| Not Available | <0.015    | silicon dioxide        |
| 1309-37-1     | <0.01     | <u>ferric oxide</u>    |
| 1313-59-3     | <0.0075   | <u>sodium monoxide</u> |
| Not Available | <0.3      | total water            |

**Mixtures**

See section above for composition of Substances

**SECTION 4 First aid measures****Description of first aid measures**

|                     |   |
|---------------------|---|
| <b>Eye Contact</b>  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh 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>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>   |
| <b>Skin Contact</b> | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>  |
| <b>Inhalation</b>   | <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>▶ If dust is inhaled, remove from contaminated area.</li> <li>▶ Encourage patient to blow nose to ensure clear breathing passages.</li> <li>▶ Ask patient to rinse mouth with water but to not drink water.</li> <li>▶ Seek immediate medical attention.</li> </ul> |
| <b>Ingestion</b>    | <ul style="list-style-type: none"> <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> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>  |

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

Treat symptomatically.

- ▶ Manifestation of aluminium toxicity include hypercalcaemia, anaemia, Vitamin D refractory osteodystrophy and a progressive encephalopathy (mixed dysarthria-apraxia of speech, asterixis, tremulousness, myoclonus, dementia, focal seizures). Bone pain, pathological fractures and proximal myopathy can occur.
- ▶ Symptoms usually develop insidiously over months to years (in chronic renal failure patients) unless dietary aluminium loads are excessive.
- ▶ Serum aluminium levels above 60 ug/ml indicate increased absorption. Potential toxicity occurs above 100 ug/ml and clinical symptoms are present when levels exceed 200 ug/ml.
- ▶ Deferoxamine has been used to treat dialysis encephalopathy and osteomalacia. CaNa2EDTA is less effective in chelating aluminium.

[Ellenhorn and Barceloux: Medical Toxicology]

Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- ▶ Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- ▶ Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- ▶ Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- ▶ The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- ▶ Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

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[Ellenhorn and Barceloux: Medical Toxicology]

**SECTION 5 Firefighting measures**

**Extinguishing media**

- ▶ **DO NOT** use halogenated fire extinguishing agents.
- ▶ Use extinguishing media suitable for surrounding area.

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

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

**Advice for firefighters**

|                              |   |
|------------------------------|---|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</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> | <p>Decomposition may produce toxic fumes of:<br/>metal oxides</p> <p>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.</p> <p>May emit poisonous fumes.<br/>May emit corrosive fumes.</p> <ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered a significant fire risk, however containers may burn.</li> </ul>  |
| <b>HAZCHEM</b>               | 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**

|                     |   |
|---------------------|---|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Use dry clean up procedures and avoid generating dust.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>   |
| <b>Major Spills</b> | <p>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ <b>CAUTION:</b> Advise personnel in area.</li> <li>▶ Alert Emergency Services and tell them location and nature of hazard.</li> <li>▶ Control personal contact by wearing protective clothing.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Recover product wherever possible.</li> <li>▶ <b>IF DRY:</b> Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal.</li> </ul> |

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

**SECTION 7 Handling and storage**

**Precautions for safe handling**

|                          |   |
|--------------------------|---|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <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>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ <b>DO NOT allow material to contact humans, exposed food or food utensils.</b></li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling, DO NOT eat, drink or smoke.</b></li> </ul>   |
| <b>Other information</b> | <ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry area protected from environmental extremes.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul> <p>For major quantities:</p> <ul style="list-style-type: none"> <li>▶ Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).</li> <li>▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.</li> </ul> |

## Conditions for safe storage, including any incompatibilities

|                                |  |
|--------------------------------|--|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>▶ Polyethylene or polypropylene container.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>   |
| <b>Storage incompatibility</b> | <p>Derivative of electropositive metal.<br/>For aluminas (aluminium oxide):<br/>Incompatible with hot chlorinated rubber.<br/>In the presence of chlorine trifluoride may react violently and ignite.<br/>-May initiate explosive polymerisation of olefin oxides including ethylene oxide.<br/>-Produces exothermic reaction above 200°C with halocarbons and an exothermic reaction at ambient temperatures with halocarbons in the presence of other metals.<br/>-Produces exothermic reaction with oxygen difluoride.<br/>-May form explosive mixture with oxygen difluoride.<br/>-Forms explosive mixtures with sodium nitrate.<br/>-Reacts vigorously with vinyl acetate.</p> <ul style="list-style-type: none"> <li>▶ Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.</li> <li>▶ These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.</li> <li>▶ The state of subdivision may affect the results.</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 | aluminium oxide | Aluminium oxide   | 10 mg/m3 | Not Available | Not Available | (a) This value is for inhalable dust containing no asbestos and < 1% crystalline silica. |
| Australia Exposure Standards | ferric oxide    | Iron oxide fume (Fe <sub>2</sub> O <sub>3</sub> ) (as Fe) | 5 mg/m3  | Not Available | Not Available | Not Available  |

## Emergency Limits

| Ingredient      | Material name                                     | TEEL-1    | TEEL-2    | TEEL-3      |
|-----------------|---|-----------|-----------|-------------|
| aluminium oxide | Aluminum oxide; (Alumina)                         | 15 mg/m3  | 170 mg/m3 | 990 mg/m3   |
| ferric oxide    | Iron oxide; (Ferric oxide)                        | 15 mg/m3  | 360 mg/m3 | 2,200 mg/m3 |
| sodium monoxide | Sodium monoxide; (Sodium oxide)                   | 0.5 mg/m3 | 5 mg/m3   | 50 mg/m3    |
| sodium monoxide | Disodium monoxide; (Disodium oxide; Sodium oxide) | 0.5 mg/m3 | 5 mg/m3   | 50 mg/m3    |

| Ingredient      | Original IDLH | Revised IDLH  |
|-----------------|---------------|---------------|
| aluminium oxide | Not Available | Not Available |
| ferric oxide    | 2,500 mg/m3   | Not Available |
| sodium monoxide | Not Available | Not Available |

## Exposure controls

|   |   |
|---|---|
| <b>Appropriate engineering controls</b> | <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>Local exhaust ventilation usually required.</p> |
| <b>Personal protection</b>              |    |
| <b>Eye and face protection</b>          | <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles.</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.</li> </ul>  |
| <b>Skin protection</b>                  | See Hand protection below   |
| <b>Hands/feet protection</b>            | <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 making a final choice.</p> <p>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.</p> <p>Suitability and durability of glove type is dependent on usage.</p>   |

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|                         |  |
|-------------------------|--|
|                         | Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. <ul style="list-style-type: none"> <li>▶ polychloroprene.</li> <li>▶ nitrile rubber.</li> <li>▶ butyl rubber.</li> <li>▶ fluorocaoutchouc.</li> <li>▶ polyvinyl chloride.</li> </ul> Gloves should be examined for wear and/ or degradation constantly. |
| <b>Body protection</b>  | See Other protection below   |
| <b>Other protection</b> | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>   |

**Respiratory protection**

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|------------------------|
| up to 10 x ES                      | P1<br>Air-line*      | -<br>-               | PAPR-P1<br>-           |
| up to 50 x ES                      | Air-line**           | P2                   | PAPR-P2                |
| up to 100 x ES                     | -                    | P3                   | -                      |
|                                    |                      | Air-line*            | -                      |
| 100+ x ES                          | -                    | Air-line**           | PAPR-P3                |

\* - 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(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ 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.

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

|   |  |  |                |
|---|--|--|----------------|
| <b>Appearance</b>                                   | White crystalline powder with no odour. Insoluble in water; very slightly soluble in acids and alkalis; insoluble in organic solvents. |  |                |
| <b>Physical state</b>                               | Divided Solid  | <b>Relative density (Water = 1)</b>            | 3.965          |
| <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 Applicable |
| <b>pH (as supplied)</b>                             | Not Applicable   | <b>Decomposition temperature</b>               | Not available. |
| <b>Melting point / freezing point (°C)</b>          | 2050-2072  | <b>Viscosity (cSt)</b>                         | Not Applicable |
| <b>Initial boiling point and boiling range (°C)</b> | 2977-2980  | <b>Molecular weight (g/mol)</b>                | 101.96         |
| <b>Flash point (°C)</b>                             | Not Applicable   | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Applicable   | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Applicable   | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Applicable   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Applicable |
| <b>Lower Explosive Limit (%)</b>                    | Not Applicable   | <b>Volatile Component (%vol)</b>               | Not Applicable |
| <b>Vapour pressure (kPa)</b>                        | Not Applicable   | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water</b>                          | Immiscible   | <b>pH as a solution (1%)</b>                   | Not Applicable |
| <b>Vapour density (Air = 1)</b>                     | 3.5-4.0 @ 0.133  | <b>VOC g/L</b>                                 | Not Available  |

**SECTION 10 Stability and reactivity**

|   |  |
|---|--|
| <b>Reactivity</b>                         | See section 7  |
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| <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>      | <p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.</p> <p>Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> <p>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.</p> <p>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.</p> <p>The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur.</p> |
| <b>Ingestion</b>    | <p>Accidental ingestion of the material may be damaging to the health of the individual.</p> <p>Acute toxic responses to aluminium are confined to the more soluble forms.</p> <p>Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract</p>  |
| <b>Skin Contact</b> | <p>The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.</p> <p>Though considered non-harmful, slight irritation may result from contact because of the abrasive nature of the aluminium oxide particles. Thus it may cause itching and skin reaction and inflammation.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p>  |
| <b>Eye</b>          | <p>There is some evidence to suggest that this material can cause eye irritation and damage in some persons.</p>   |
| <b>Chronic</b>      | <p>Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.</p> <p>Animal testing shows long term exposure to aluminium oxides may cause lung disease and cancer, depending on the size of the particle. The smaller the size, the greater the tendencies of causing harm.</p> <p>Exposure to large doses of aluminium has been connected with the degenerative brain disease Alzheimer's Disease.</p> <p>Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung.</p>   |

|                                       | <b>TOXICITY</b>   | <b>IRRITATION</b>   |
|---------------------------------------|---|---|
| <b>ALUMINIUM OXIDE, CALCINED 200#</b> | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>   | Eye: no adverse effect observed (not irritating) <sup>[1]</sup><br>Skin: no adverse effect observed (not irritating) <sup>[1]</sup> |
| <b>aluminium oxide</b>                | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>   | Eye: no adverse effect observed (not irritating) <sup>[1]</sup><br>Skin: no adverse effect observed (not irritating) <sup>[1]</sup> |
| <b>ferric oxide</b>                   | Oral (rat) LD50: >10000 mg/kg <sup>[2]</sup>  | Not Available   |
| <b>sodium monoxide</b>                | Not Available   | Skin: adverse effect observed (corrosive) <sup>[1]</sup><br>Skin: adverse effect observed (irritating) <sup>[1]</sup>               |
| <b>Legend:</b>                        | 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 |   |

|   |   |
|---|---|
| <b>SODIUM MONOXIDE</b>  | <p>The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.</p> <p>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.</p>  |
| <b>ALUMINIUM OXIDE, CALCINED 200# &amp; ALUMINIUM OXIDE &amp; SODIUM MONOXIDE</b> | No significant acute toxicological data identified in literature search.  |
| <b>FERRIC OXIDE &amp; SODIUM MONOXIDE</b>   | <p>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</p> |

## ALUMINIUM OXIDE, CALCINED 200#

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.

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

| ALUMINIUM OXIDE, CALCINED 200# | Endpoint | Test Duration (hr)            | Species          | Value           | Source |
|--------------------------------|----------|-------------------------------|------------------|-----------------|--------|
|                                | LC50     | 96                            | Fish             | 0.001-0.134mg/L | 2      |
| EC50                           | 48       | Crustacea                     | 0.7364mg/L       | 2               |        |
| EC50                           | 72       | Algae or other aquatic plants | 0.001-0.799mg/L  | 2               |        |
| NOEC                           | 240      | Crustacea                     | 0.001-0.1002mg/L | 2               |        |

| aluminium oxide | Endpoint | Test Duration (hr)            | Species          | Value           | Source |
|-----------------|----------|-------------------------------|------------------|-----------------|--------|
|                 | LC50     | 96                            | Fish             | 0.001-0.134mg/L | 2      |
| EC50            | 48       | Crustacea                     | 0.7364mg/L       | 2               |        |
| EC50            | 72       | Algae or other aquatic plants | 0.001-0.799mg/L  | 2               |        |
| NOEC            | 240      | Crustacea                     | 0.001-0.1002mg/L | 2               |        |

| ferric oxide | Endpoint | Test Duration (hr)            | Species  | Value    | Source |
|--------------|----------|-------------------------------|----------|----------|--------|
|              | LC50     | 96                            | Fish     | 0.05mg/L | 2      |
| EC50         | 48       | Crustacea                     | 5.11mg/L | 2        |        |
| EC50         | 72       | Algae or other aquatic plants | 18mg/L   | 2        |        |
| NOEC         | 504      | Fish                          | 0.52mg/L | 2        |        |

| sodium monoxide | Endpoint      | Test Duration (hr) | Species       | Value         | Source        |
|-----------------|---------------|--------------------|---------------|---------------|---------------|
|                 | Not Available | Not Available      | Not Available | Not Available | Not Available |

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 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

## For Metal:

Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.

Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.

Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms. Ionic species may bind to dissolved ligands or sorb to solid particles in water.

## For Aluminium and its Compounds and Salts:

Environmental Fate - 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.

Atmospheric Fate: Air Quality Standards: none available.

Aquatic Fate: The hydrated aluminium ion undergoes hydrolysis. The speciation of aluminium in water is pH dependent. The hydrated trivalent aluminium ion is the predominant form at pH levels below 4.

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

## Persistence and degradability

| Ingredient | Persistence: Water/Soil               | Persistence: Air                      |
|------------|---------------------------------------|---------------------------------------|
|            | No Data available for all ingredients | No Data available for all ingredients |

## Bioaccumulative potential

| Ingredient | Bioaccumulation                       |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

## Mobility in soil

| Ingredient | Mobility                              |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

ALUMINIUM OXIDE, CALCINED 200#

SECTION 13 Disposal considerations

Waste treatment methods

|                                     |  |
|-------------------------------------|--|
| <b>Product / Packaging disposal</b> | <p>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.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> <li>▶ Reduction</li> <li>▶ Reuse</li> <li>▶ Recycling</li> <li>▶ Disposal (if all else fails)</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Management Authority for disposal.</li> <li>▶ Bury residue in an authorised landfill.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |
|-------------------------------------|--|

SECTION 14 Transport information

Labels Required

|                         |                |
|-------------------------|----------------|
| <b>Marine Pollutant</b> | NO             |
| <b>HAZCHEM</b>          | Not Applicable |

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

|   |   |   |
|---|---|---|
| <b>aluminium oxide is found on the following regulatory lists</b> | Australian Inventory of Industrial Chemicals (AIIC)   | Chemical Footprint Project - Chemicals of High Concern List                                   |
| <b>ferric oxide is found on the following regulatory lists</b>    | Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4 | Australian Inventory of Industrial Chemicals (AIIC)   |
|   | Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5 | International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs |
|   | Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6 |   |
| <b>sodium monoxide is found on the following regulatory lists</b> | Australian Inventory of Industrial Chemicals (AIIC)   |   |

National Inventory Status

| National Inventory             | Status  |
|--------------------------------|---|
| Australia - AIIC               | Yes   |
| Australia - Non-Industrial Use | No (aluminium oxide; ferric oxide; sodium monoxide) |
| Canada - DSL                   | Yes   |
| Canada - NDSL                  | No (aluminium oxide; ferric oxide; sodium monoxide) |
| 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   |



| National Inventory | Status   |
|--------------------|--|
| <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

|               |               |
|---------------|---------------|
| Revision Date | 05/03/2018    |
| Initial Date  | Not Available |

## SDS Version Summary

| Version | Issue Date | Sections Updated   |
|---------|------------|--|
| 4.1.1.1 | 28/03/2009 | Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Advice to Doctor, 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), Handling Procedure, Instability Condition, Personal Protection (other), Personal Protection (Respirator), Personal Protection (eye), Personal Protection (hands/feet), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Supplier Information, Transport |
| 5.1.1.1 | 05/03/2018 | Acute Health (swallowed), Chronic Health, Classification, Exposure Standard, First Aid (swallowed), Storage (storage incompatibility), Storage (storage requirement), Supplier Information, Synonyms, Toxicity and Irritation (Other)  |

## 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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