

## Millmerran Flyash

Millmerran Flyash Pty Ltd

Chemwatch Hazard Alert Code: 3

Chemwatch: 5218-34

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Safety Data Sheet according to WHS and ADG requirements

S.GHS.AUS.EN

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

#### Product Identifier

|                               |  |
|-------------------------------|--|
| Product name                  | Millmerran Flyash                                |
| Synonyms                      | Fly Ash, Pozzolanic Fly Ash, Pulverised Fuel Ash |
| Other means of identification | Not Available                                    |

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

|                          |  |
|--------------------------|--|
| Relevant identified uses | Use according to manufacturer's directions.<br>Soil conditioner, additive in concrete. |
|--------------------------|--|

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

|                         |   |
|-------------------------|---|
| Registered company name | Millmerran Flyash Pty Ltd                                     |
| Address                 | 431 Moffatt Reserve Road Millmerran QLD 4357 Australia        |
| Telephone               | +61 7 4695 6033   |
| Fax                     | +61 7 4695 6133   |
| Website                 | <a href="https://mflyash.com.au/">https://mflyash.com.au/</a> |
| Email                   | admin@mflyash.com.au  |

#### Emergency telephone number

|                                   |                            |
|-----------------------------------|----------------------------|
| Association / Organisation        | Poisons Information Centre |
| Emergency telephone numbers       | 13 1126                    |
| Other emergency telephone numbers | Not Available              |


### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

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

|                               |  |
|-------------------------------|--|
| Poisons Schedule              | Not Applicable   |
| Classification <sup>[1]</sup> | Carcinogenicity Category 1A, Specific target organ toxicity - repeated exposure Category 2                                     |
| Legend:                       | 1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI |

#### Label elements

|                    |   |
|--------------------|---|
| GHS label elements |  |
|--------------------|---|

Continued...

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SIGNAL WORD **DANGER**

**Hazard statement(s)**

|             |  |
|-------------|--|
| <b>H350</b> | May cause cancer.  |
| <b>H373</b> | May cause damage to organs through prolonged or repeated exposure. |

**Precautionary statement(s) Prevention**

|             |  |
|-------------|--|
| <b>P201</b> | Obtain special instructions before use.          |
| <b>P260</b> | Do not breathe dust/fume/gas/mist/vapours/spray. |
| <b>P281</b> | Use personal protective equipment as required.   |

**Precautionary statement(s) Response**

|                  |  |
|------------------|--|
| <b>P308+P313</b> | IF exposed or concerned: Get medical advice/attention. |
| <b>P314</b>      | Get medical advice/attention if you feel unwell.       |

**Precautionary statement(s) Storage**

|             |                  |
|-------------|------------------|
| <b>P405</b> | Store locked up. |
|-------------|------------------|

**Precautionary statement(s) Disposal**

|             |   |
|-------------|---|
| <b>P501</b> | Dispose of contents/container in accordance with local regulations. |
|-------------|---|

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

**Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No     | %[weight] | Name                               |
|------------|-----------|------------------------------------|
| 7631-86-9  | 30-60     | <u>silica amorphous</u>            |
| 1302-93-8  | 30-60     | <u>mullite</u>                     |
| 14808-60-7 | 1-5       | <u>silica crystalline - quartz</u> |
| 1317-60-8  | <1        | <u>haematite</u>                   |

**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> </ul> |
| <b>Ingestion</b>    | <ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>   |

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

Treat symptomatically.

## 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

|                             |             |
|-----------------------------|-------------|
| <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> </ul> |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered a significant fire risk, however containers may burn.</li> </ul> May emit poisonous fumes.  |
| <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>▶ Clean up all spills immediately.</li> <li>▶ Avoid contact with skin and eyes.</li> <li>▶ Wear impervious gloves and safety glasses.</li> <li>▶ Use dry clean up procedures and avoid generating dust.</li> <li>▶ Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).</li> <li>▶ Do NOT use air hoses for cleaning</li> <li>▶ Place spilled material in clean, dry, sealable, labelled container.</li> </ul> |
| <b>Major Spills</b> | Moderate hazard. <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.</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> </ul> |
|----------------------|--|

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|                          |   |
|--------------------------|---|
| <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 banded 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> | <ul style="list-style-type: none"> <li>▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.</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 | silica amorphous            | Silica - Amorphous: Precipitated silica / Silica - Amorphous: Silica gel / Precipitated silica / Silica gel | 10 mg/m3  | Not Available | Not Available | Not Available |
| Australia Exposure Standards | silica amorphous            | Silica - Amorphous: Diatomaceous earth (uncalcined) / Diatomaceous earth (uncalcined)                       | 10 mg/m3  | Not Available | Not Available | Not Available |
| Australia Exposure Standards | silica amorphous            | Silica - Amorphous: Fume (thermally generated) (respirable dust)  | 2 mg/m3   | Not Available | Not Available | Not Available |
| Australia Exposure Standards | silica amorphous            | Silica - Amorphous: Fumed silica (respirable dust) / Fumed silica (respirable dust)                         | 2 mg/m3   | Not Available | Not Available | Not Available |
| Australia Exposure Standards | silica crystalline - quartz | Silica - Crystalline: Quartz (respirable dust) / Quartz (respirable dust)                                   | 0.1 mg/m3 | Not Available | Not Available | Not Available |

**EMERGENCY LIMITS**


| Ingredient                  | Material name  | TEEL-1      | TEEL-2      | TEEL-3      |
|-----------------------------|--|-------------|-------------|-------------|
| silica amorphous            | Silica gel, amorphous synthetic  | 18 mg/m3    | 200 mg/m3   | 1,200 mg/m3 |
| silica amorphous            | Silica, amorphous fumed  | 18 mg/m3    | 100 mg/m3   | 630 mg/m3   |
| silica amorphous            | Siloxanes and silicones, dimethyl, reaction products with silica; (Hydrophobic silicon dioxide, amorphous) | 120 mg/m3   | 1,300 mg/m3 | 7,900 mg/m3 |
| silica amorphous            | Silica, amorphous fume   | 45 mg/m3    | 500 mg/m3   | 3,000 mg/m3 |
| silica amorphous            | Silica amorphous hydrated  | 18 mg/m3    | 220 mg/m3   | 1,300 mg/m3 |
| silica crystalline - quartz | Silica, crystalline-quartz; (Silicon dioxide)  | 0.075 mg/m3 | 33 mg/m3    | 200 mg/m3   |

| Ingredient                  | Original IDLH         | Revised IDLH  |
|-----------------------------|-----------------------|---------------|
| silica amorphous            | N.E. mg/m3 / N.E. ppm | 3,000 mg/m3   |
| mullite                     | Not Available         | Not Available |
| silica crystalline - quartz | N.E. mg/m3 / N.E. ppm | 50 mg/m3      |
| haematite                   | Not Available         | Not Available |

**Exposure controls**

|   |  |
|---|--|
| <b>Appropriate engineering controls</b> | 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. |
|---|--|

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|                                |  |
|--------------------------------|--|
|                                | <p>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>  |
| <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.</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 moisturizer is recommended.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> <li>▶ polychloroprene.</li> <li>▶ nitrile rubber.</li> <li>▶ butyl rubber.</li> <li>▶ fluorocautchouc.</li> <li>▶ polyvinyl chloride.</li> </ul> <p>Gloves should be examined for wear and/ or degradation constantly.</p> |
| <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>  |
| <b>Thermal hazards</b>         | Not Available  |

**Respiratory protection**

Particulate. (AS/NZS 1716 & 1715, EN 143:000 & 149:001, ANSI Z88 or national equivalent)

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 wear full-face 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.

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Information on basic physical and chemical properties

|   |  |  |                |
|---|--|--|----------------|
| <b>Appearance</b>                                   | Grey finely divided solid/powder with a slight odour; not miscible with water. |  |                |
| <b>Physical state</b>                               | Divided Solid  | <b>Relative density (Water = 1)</b>            | Not Available  |
| <b>Odour</b>  | Not Available  | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available  | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | Not Applicable   | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | Not Available  | <b>Viscosity (cSt)</b>                         | Not Applicable |
| <b>Initial boiling point and boiling range (°C)</b> | Not Applicable   | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <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 (g/L)</b>                    | Immiscible   | <b>pH as a solution (1%)</b>                   | Not Applicable |
| <b>Vapour density (Air = 1)</b>                     | Not Applicable   | <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>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>Effects on lungs are significantly enhanced in the presence of respirable particles.</p> |
| <b>Ingestion</b>    | <p>The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.</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>  |

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|                |   |
|----------------|---|
|                | Open cuts, abraded or irritated skin should not be exposed to this material   |
| <b>Eye</b>     | There is some evidence to suggest that this material can cause eye irritation and damage in some persons.   |
| <b>Chronic</b> | <p>Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer.</p> <p>Harmful: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections.</p> <p>Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections</p> <p>Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion (exertional dyspnea), increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Other signs or symptoms include altered breath sounds, diminished lung capacity, diminished oxygen uptake during exercise, emphysema and pneumothorax (air in lung cavity) as a rare complication.</p> |

|                                    | TOXICITY  | IRRITATION                      |
|------------------------------------|---|---------------------------------|
| <b>Millmerran Flyash</b>           | Not Available   | Not Available                   |
| <b>silica amorphous</b>            | Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>  | Eye (rabbit): non-irritating *  |
|                                    | Inhalation (rat) LC50: >0.139 mg/l/14hr <sup>+[2]</sup>   | Skin (rabbit): non-irritating * |
|                                    | Oral (rat) LD50: 3160 mg/kg <sup>[2]</sup>  |                                 |
| <b>mullite</b>                     | Not Available   | Not Available                   |
| <b>silica crystalline - quartz</b> | Not Available   | Not Available                   |
| <b>haematite</b>                   | Inhalation (rat) LC50: >2.2 mg/l/1 hr <sup>[1]</sup>  | Not Available                   |
|                                    | Oral (rat) LD50: 14.6 mg/kg <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>SILICA AMORPHOUS</b>            | <p>For silica amorphous:</p> <p>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.</p> <p>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.</p> <p>Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS]</p>   |
| <b>MULLITE</b>                     | No data of toxicological significance identified in literature search.   |
| <b>SILICA CRYSTALLINE - QUARTZ</b> | <p><b>WARNING:</b> For inhalation exposure <u>ONLY</u>: This substance has been classified by the IARC as Group 1: <b>CARCINOGENIC TO HUMANS</b></p> <p>The International Agency for Research on Cancer (IARC) has classified occupational exposures to <b>respirable</b> (&lt;5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease.</p> <p>Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours.</p> <p>* Millions of particles per cubic foot (based on impinger samples counted by light field techniques).</p> <p>NOTE : the physical nature of quartz in the product determines whether it is likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.</p> |
| <b>HAEMATITE</b>                   | No significant acute toxicological data identified in literature search.   |

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|  |  |                                 |   |
|--|--|---------------------------------|---|
| <b>SILICA AMORPHOUS &amp; HAEMATITE</b>  | The substance is classified by IARC as Group 3:<br><b>NOT</b> classifiable as to its carcinogenicity to humans.<br>Evidence of carcinogenicity may be inadequate or limited in animal testing. |                                 |   |
| <b>Acute Toxicity</b>                    | ⊘  | <b>Carcinogenicity</b>          | ✔ |
| <b>Skin Irritation/Corrosion</b>         | ⊘  | <b>Reproductivity</b>           | ⊘ |
| <b>Serious Eye Damage/Irritation</b>     | ⊘  | <b>STOT - Single Exposure</b>   | ⊘ |
| <b>Respiratory or Skin sensitisation</b> | ⊘  | <b>STOT - Repeated Exposure</b> | ✔ |
| <b>Mutagenicity</b>                      | ⊘  | <b>Aspiration Hazard</b>        | ⊘ |

**Legend:** ✘ – Data available but does not fill the criteria for classification  
✔ – Data available to make classification  
⊘ – Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

### Toxicity

| Ingredient       | Endpoint   | Test Duration (hr) | Species                       | Value       | Source |
|------------------|--|--------------------|-------------------------------|-------------|--------|
| silica amorphous | LC50   | 96                 | Fish                          | 120.743mg/L | 3      |
| silica amorphous | EC50   | 48                 | Crustacea                     | ca.7600mg/L | 1      |
| silica amorphous | EC50   | 72                 | Algae or other aquatic plants | 440mg/L     | 1      |
| silica amorphous | EC50   | 384                | Crustacea                     | 28.000mg/L  | 3      |
| silica amorphous | NOEC   | 72                 | Algae or other aquatic plants | 60mg/L      | 1      |
| <b>Legend:</b>   | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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 |                    |                               |             |        |

Bentonite and kaolin have low toxicity to aquatic species, a large number of which have been tested

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

### Persistence and degradability

| Ingredient       | Persistence: Water/Soil | Persistence: Air |
|------------------|-------------------------|------------------|
| silica amorphous | LOW                     | LOW              |

### Bioaccumulative potential

| Ingredient       | Bioaccumulation       |
|------------------|-----------------------|
| silica amorphous | LOW (LogKOW = 0.5294) |

### Mobility in soil

| Ingredient       | Mobility          |
|------------------|-------------------|
| silica amorphous | LOW (KOC = 23.74) |

## 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</p> |
|-------------------------------------|---|

Continued...



Millmerran Flyash

- 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**

|                         |                |
|-------------------------|----------------|
| <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**

**SILICA AMORPHOUS(7631-86-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

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

**MULLITE(1302-93-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

|   |
|---|
| Australia Inventory of Chemical Substances (AICS) |
|---|

**SILICA CRYSTALLINE - QUARTZ(14808-60-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

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

**HAEMATITE(1317-60-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

|   |   |
|---|---|
| Australia Inventory of Chemical Substances (AICS) | International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs |
|---|---|

| National Inventory            | Status                                   |
|-------------------------------|--|
| Australia - AICS              | Y  |
| Canada - DSL                  | N (haematite)                            |
| Canada - NDSL                 | N (silica crystalline - quartz; mullite) |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | N (haematite)                            |
| Korea - KECI                  | Y  |
| New Zealand - NZIoC           | Y  |
| Philippines - PICCS           | N (mullite)                              |
| USA - TSCA                    | Y  |

**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)

## SECTION 16 OTHER INFORMATION

### Other information

#### Ingredients with multiple cas numbers

| Name                        | CAS No   |
|-----------------------------|--|
| silica amorphous            | 7631-86-9, 112945-52-5, 67762-90-7, 68611-44-9, 68909-20-6, 112926-00-8, 61790-53-2, 60676-86-0, 91053-39-3, 69012-64-2, 844491-94-7 |
| mullite                     | 1302-93-8, 61027-90-5  |
| silica crystalline - quartz | 14808-60-7, 122304-48-7, 122304-49-8, 12425-26-2, 1317-79-9, 70594-95-5, 87347-84-0  |

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.

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