Material Safety Data Sheet

CLASSIFIED AS HAZARDOUS ACCORDING TO CRITERIA OF NOHSC

1. IDENTIFICATION OF THE PREPARATION AND THE COMPANY

Product name:	BAYSWATER FLYASH
Recommended Use:	Concrete additive, bulk filler, fine filler in asphalt and other products, mine pastefill, soil amendment and stabilisation, stabilising agent for liquid wastes, road base.
Company:	FLYASH AUSTRALIA PTY LTD (ABN 68 002 840 271)
Address:	Level 1, 564 Princes Hwy, Rockdale NSW 2216
Telephone:	02 9597 9967
Fax:	02 9597 9901
EMERGENCY TELEPHONE NUMBER:	02 4973 3634

2. HAZARDS IDENTIFICATION

Hazard classification

- Classified as Hazardous according to the criteria of NOHSC.
- Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Risk & Safety Phrases

R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R36/37/38: Irritating to eyes, respiratory system and skin.
S21: When using do not smoke.
S22: Do not breathe dust.
S24/25: Avoid contact with skin and eyes.
S38: If insufficient ventilation, wear suitable respiratory equipment.

3. COMPOSITION / INFORMATION ON INGREDIENTS

This product contains fly ash (100%)* CAS No. 68131-74-8, consisting of:

Component	CAS No.	Proportion (%)
Mullite	1302-93-8	10-30%
Crystalline silica (as Quartz-SiO_2)	14808-60-7	8%**
Amorphous silica	7631-86-9	30-60%

*Note 1: Approximately 40% of particles in the bulk material (fly ash) are in the respirable dust[1] fraction.
**Note 2: The crystalline silica content in the respirable dust proportion of this component is 2%.

[1]Respirable Dust is the fraction of dust, (less than 10 microns) which is capable of penetrating deep into the lungs.

4. FIRST AID MEASURES

Route of exposure

Ingestion: If swallowed, do NOT induce vomiting. If a large amount has been swallowed, or if symptoms develop, contact a Poisons Information Centre (Phone **13 11 26**) or a doctor for advice.

Eye contact: If eye contact occurs rinse immediately with copious amounts of water. If irritation persists seek medical advice.

Skin contact: Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If persistent irritation occurs seek medical advice. Be aware of the risk of silica inhalation when laundering clothing. Take appropriate measures to prevent inhalation of dusts. Clothing should not be beaten.

Inhalation: Remove victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. Seek medical advice.

Medical Attention and Special Treatment

Advice to doctor: Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 5 microns penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on x-ray. Exposed workers should be medically examined regularly with emphasis on respiratory system. Individuals with pulmonary disease should be excluded from exposure.

Additional Information

First aid facilities: Eye wash and normal washroom facilities should be available.

Medical conditions generally aggravated by exposure: Inhalation of crystalline silica may increase the progression of tuberculosis; susceptibility is apparently not increased. Persons with impaired respiratory function may be more susceptible to the effects of this substance. Smoking can increase the risk of lung injury.

5. FIRE-FIGHTING MEASURES

Specific hazards: This product is non-flammable. Formation of dust clouds may pose an explosion hazard.

Hazardous combustion or decomposition products: At higher temperatures (e.g. above 870°C) quartz can change crystal structure to form tridymite or cristobalite, which have greater health hazards and lower exposure limits.

Suitable extinguishing media: Use suitable extinguisher for the surrounding environment.

Special protective precautions and equipment for fire-fighter's: Fire-fighter's should wear full protective clothing and self-contained breathing apparatus.

Hazchem code: Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures: Prevent entry to area by unprotected personnel.

Personal precautions: Wear sufficient respiratory protection and protective clothing where necessary (see Section 8 – Exposure Controls/Personal Protection) for more information.

Methods and material for containments and clean up: Vacuum or wet sweep material avoiding generation of dusts. A fine water spray should be used to suppress dust when sweeping. Product dampened with water may be collected with a clean shovel. Seal all spilled product and wastes in vapour tight labelled plastic containers for reuse/recycle where possible or eventual disposal.

7. HANDLING AND STORAGE

Handling: Limit all unnecessary personal contact. Wear suitable protective clothing and eye/face protection. Use in a well-ventilated area. When handling, DO NOT eat, drink or smoke. Always wash hands with soap and water after handling. Avoid physical damage to containers. Use good occupational work practices. Grinding, crushing or other physical alterations to the product may lead to the release of respirable dusts containing crystalline silica.

Storage: Concrete or steel lid bins and silos or plastic lined sacks are recommended forms of storage. Store in a cool, dry, well-ventilated area away from foodstuffs and incompatible materials. Store in original containers. Keep containers securely sealed. Protect containers against physical damage and check regularly for leaks.

Transportation: Transportation is by road in bulk or bag.

Hygiene: Do not introduce, keep, prepare or consume any food or drink, or use tobacco, in any area where this product is kept or handled. After handling this product, always wash your hands before eating, drinking, smoking or using the toilet, and after work.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: Safe Work Australia, formerly the National Occupational Health & Safety Commission (NOHSC), has recommended the following Occupational Exposure Standards (available from Hazardous Substance Information System (HSIS) www.safeworkaustralia.gov.au.

	OES-TWA *(mg/m³)*	OES-STEL *(mg/m³)*
Crystalline silica (as Quartz-respirable dust)	0.1	Not applicable
Amorphous silica (fumed silica – respirable dust)	2	Not applicable

Note: In simple terms; Time Weighted Average (TWA) implies a true average exposure taken throughout the day above which no person should be exposed to; whilst Short Term Exposure Limit (STEL), is basically the limit set for periods of 15 minutes, not exceeding 4 occasions per day with 1 hour between exposures:-

Biological limits: Not applicable

Manufacturer's recommendations: Keep exposure to dust as low as practicable, use in well ventilated areas and avoid repeated skin contact with flyash.

Engineering controls: Ensure sufficient ventilation to maintain airborne concentrations below exposure standards and prevent exposure to dusts.

Avoid generating dust. In poorly ventilated areas, mechanical extraction ventilation is recommended. For bulk deliveries, closed pumping systems are recommended. When handled pneumatically use standard dust filters on vehicles and silos. For handling of individual bags, if no local exhaust ventilation is available, refer to following instructions for personal protection.

Work areas should be cleaned regularly by wet sweeping or vacuuming. A fine water spray should be used to suppress dust when sweeping.

Personal Protective Equipment (PPE): Where sufficient ventilation is not available, avoid breathing dusts by wearing an AS 1716 approved P1 particulate respirator. At higher concentrations (i.e. greater than 10X the exposure standard) or where the airborne concentration is unknown, a greater degree of protection (e.g. supplied air respirator) should be worn. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices. Consult your safety equipment supplier for advice when selecting appropriate respiratory protection.

Eye protection: If possibility of eye contact exists then safety glasses with side shields or goggles should be worn as described in Australian Standard AS/NZS 1337 – "Eye and Face Protectors for Occupational Applications". Contact Lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

Hand protection: Apply barrier cream to hands or wear general protective gloves (AS 2161) i.e. disposable polythene gloves, cotton gloves or light weight rubber gloves.

Body protection: Suitable protective clothing should be worn e.g. cotton overalls buttoned at neck and wrist. Wash work clothes regularly. Care should be taken to wash all contaminated clothing thoroughly. Be aware of risk of silica inhalation when laundering clothing. Take appropriate measures to prevent inhalation of dusts. Clothing should not be beaten.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Grey, fine powdery solid. with no odour.
Odour	None.
pH	Alkaline (10.4)
Vapour pressure	Not applicable
Vapour density	Not applicable
Boiling point	Not applicable.
Melting point	Approx. 1400°C.
Solubility	Negligible solubility in water.
Specific gravity	Approx. 2.2
Flash point	Not applicable
Flammability limits – lower	Not applicable
– upper	Not applicable
Ignition temperature	Not applicable

10. STABILITY AND REACTIVITY

Chemical stability: Stable.

Conditions to avoid: High temperatures (e.g. > 870°C).

Incompatible materials: Oxidizing agents, hydrogen fluoride, oxygen difluoride, chlorine trifluoride, manganese trifluoride, fluorine, manganese trioxide, chlorine trioxide, concentrated phosphoric acid, vinyl acetate.

Hazardous decomposition: High temperatures may cause quartz to change to more hazardous forms of crystalline silica e.g. tridymite and cristobalite.

Hazardous reactions: May react hazardously with oxidizing agents.

11. TOXICOLOGICAL INFORMATION

Acute health hazards

Ingestion: Ingestion of large amounts may irritate the gastric system causing nausea and vomiting.

Eye contact: Irritating to eyes.

Skin contact: Irritating to skin.

Inhalation: Irritating to the respiratory system. Symptoms include coughing, sneezing and breathing difficulties. Acute pneumoconiosis from overwhelming exposure to silica dust has occurred. Coughing and irritation of throat are early symptoms.

Chronic health hazards

Crystalline Silica (respirable size) has been classified by the IARC as Group 1 carcinogenic to humans. Inhalation of respirable silica may cause silicosis or other serious delayed lung injury.

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.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Persistence and degradability: Not available.

Mobility: Not available.

Bio-accumulation: Not available.

13. DISPOSAL CONSIDERATIONS

Disposal methods and containers: Dispose of product and empty containers according to relevant local, state and federal government regulations. Ensure thorough cleaning of empty containers before disposal.

Special precautions for landfill or incineration: Dispose of at approved waste disposal site. Incineration may cause quartz to form more hazardous forms (e.g. tridymite and cristobalite).

Other information: It is the responsibility of the generator of the waste to ensure proper waste classification, transportation and disposal. Classify waste under applicable state and local regulations. The information contained in this document applies to the material as manufactured. Processing, use or contamination may make the information inappropriate, inaccurate or incomplete.

14. TRANSPORT INFORMATION

Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

UN Number	Not applicable.
UN Proper Shipping Name	Not applicable.
Class and subsidiary risk	Not applicable.
Packing Group	Not applicable.
Hazchem Code	Not applicable.

15. REGULATORY INFORMATION

Poisons Schedule: Not scheduled.

AICS status: All ingredients are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Issue date: 25/07/2010.

References:

- Standard for the Uniform Scheduling of Drugs and Poisons No. 24 – National Drugs and Poisons Schedule Committee.
- International Chemical Safety Card 0808 (Quartz) – International Labour Organization.
- IARC Monographs – International Agency for Research on Cancer.
- RTECS – Register of Toxic Effects of Chemical Substances.
- Hazardous Substances Data Bank – National Library of Medicine.
- List of Designated Hazardous Substances-[NOHSC:10005 (1994)] HSIS
- Approved Criteria for Classifying Hazardous Substances-[NOHSC:1008 (2004)]
- Exposure Standards for Atmospheric Contaminants in the Occupational Environment-[NOHSC:3008 (1995)]
- Australian Standard AS/NZS 1715:1994, "Selection, Use and Maintenance of Respiratory Protective Devices".
- Australian Standard AS/NZS 1716:2003, "Respiratory Protection Devices".
- Australian Standard AS/NZS 1337:1.2010 – "Personal Eye Protection - Eye and Face Protectors for Occupational Applications".
- Australian Standard AS/2161.1.2000 – "Occupational Protective Gloves: Selection, Use and Maintenance".

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

…End of MSDS…

Reviewed and Updated by Pickford and Rhyder Consulting Proprietary Limited.