SAFETY DATA SHEET

NZIC NEW ZEALAND INDEPENDENT CEMENT

Flyash

1. Identification

Product Name: Flyash
Proper Shipping Name: Not applicable
Recommended Use: Not applicable
UN Number: Not applicable

Other names: Pulverized Fuel Ash, Coal Fly Ash, Class F Fly Ash, Class C Fly Ash, Type C Fly Ash, Type F Fly Ash, Lignite Coal Fly Ash, Subbituminous Coal Fly Ash, Anthracite Coal Fly Ash, Bituminous Coal Fly Ash, Ash, Furnace Bottom Ash, Ultrafine Fly Ash

Supplier information:

Name: NZIC

Phone: 027 316 5615

Address: 22 McAlpine Street, Christchurch, 8042

Website: nzindependentcement.co.nz

Emergency Contacts: Emergency Services (Fire, Ambulance, Police) – Dial 111

Company Contact – 0800 692 3636 (0800 NZ CEMENT)

National Poisons Information Centre – 0800 764 766 (0800 POISON)

Product Use: Fly Ash is used as a supplementary cementitious or pozzolanic material for cement, concrete and concrete products. It is also used in soil stabilization, filler in asphalt, component of wallboard, concrete, asphalt, roofing material, bricks, cement kiln feed functional filler and construction material for various civil engineering applications.

2. Hazard Identification

Statement of Hazardous Nature:
This preparation is classified as a health or environmental hazard according to the Hazardous Substances (Minimum Degrees of Hazard) Notice 2017.
Not classified as a Dangerous Good according to NZS 5433.

Hazard Statements:
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May cause cancer
Causes respiratory harm through prolonged or repeated exposure.

Classification of the Substance or Mixture (GHS-US)
Skin Irritation 2
Eye Irritation 2A
STOT-SE (Single Exposure) 2
(Respiratory) STOT-RE (Repeated Exposure) 1 (Respiratory) Carcinogenicity 1A

Precautionary Statements:

Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands, forearms, and other exposed areas thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, and eye protection/ face protection.
Remove contaminated clothing and wash before re-use.
Store locked up.
Dispose of contents in accordance with local/regional/national/international regulations.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (OR HAIR): Remove all contaminated clothing immediately. Rinse skin with plenty of water/shower.
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing until pain or irritation subsides.
If symptoms persist: Get medical advice/attention.
If skin irritation occurs or eye irritation persists: Get medical help.
If exposed or concerned, get medical advice.
Get medical help if you feel unwell.

Other Hazards:

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Repeat inhalation exposure may cause obstructive pulmonary disease, chronic bronchitis, silicosis, and cancer.

3. Composition & Information on Ingredients

Description of Product: Fly Ash—All Types

Mixture Ingredients and Hazard Classification

Ingredient	Product Identifier / CAS No.	% (w/w)	Hazard Classification (GHS-US)
Fly ash combustion residue (amorphous calcium-aluminum silicates)*	68131-74-8	70 – 90	• Skin Irritation 2, H315 • Eye Irritation 2A, H319 • STOT-SE (Single Exposure) 3 (Respiratory), H332 • STOT-RE (Repeated Exposure) 1 (Respiratory), H373
Crystalline silica*	14808-60-7	< 16 < 2.1 (respirable fraction)	• STOT-RE (Repeated Exposure) 1 (Respiratory), H373 • Carcinogenicity 1 (H350)
Calcium oxide	1305-78-8	< 30	• Skin Irritation 2, H315 • Eye Irritation 1, H320
Potassium oxide	12136-45-7	1 – 5	• Skin Irritation 2, H315 • Eye Irritation 2A, H319
Phosphorus pentoxide	1314-56-3	< 2	• Skin Corrosivity 1, H313 • Eye Irritation 1, H319

*Fly ash and other CCPs are UVCB substances (substance of unknown or variable composition or biological). Fly ash is defined by the U.S. EPA as: "The residuum from the burning of a combination of carbonaceous materials .The following elements may be present as oxides: aluminum, calcium, iron, magnesium, nickel, phosphorus, potassium, silicon, sulfur, titanium, and vanadium."
The exact composition of fly ash is dependent on the fuel source and flue additives composed of many constituents. The classification of the final substance is dependent on the presence of specific identified oxides as well as other trace elements.

4. First Aid Measures

New Zealand Poisons & Hazardous Chemicals National Information Centre

Phone 0800 POISON – 0800 764 766

Inhalation: Move person to fresh air. Provide drinking water, if conscious, to flush mouth and irrigate upper respiratory tract. Seek medical attention if pain, coughing or other symptoms do not subside.

Skin: Flush skin with plenty of water until irritation subsides. If irritation persists, obtain medical assistance. Wash contaminated clothing before re-use.

General: Never give anything by mouth to an unconscious person. Any person who is experiencing symptoms of injury or illness should be moved to a comfortable area with fresh air, and the label or SDS of this material reviewed. If feeling unwell, seek medical advice.

Eye Contact: If the exposed person experiences burning eye irritation due to dust exposure, careful flushing with clean water should continue for at least 15 minutes. If contact lenses are present, they should be removed after flushing if easy to do. Continue flushing. Obtain medical attention if irritation persists.

Ingestion: Ingestion of this material is not an expected route of exposure. Rinsing mouth with water is appropriate.

Most Important Symptoms and Effects—Both Acute and Delayed

General: The most important symptoms and effects from exposure to this material after contact with dust are eye and skin irritation. Breathing dust can cause respiratory irritation and respiratory system chronic illness if significant exposures occur repeatedly.

Inhalation: The immediate acute response to dust inhalation is respiratory system irritation. Upon repeated dust exposure at levels exceeding regulatory limits, crystalline silica content of the dust may cause delayed or chronic respiratory illnesses, including silicosis and cancer.

Eye Contact: Exposures of the eyes to dust may result in irritation, which must be treated immediately with first aid (Section 4) followed by medical attention if irritation persists.

Skin Contact: Skin contact can cause irritation.

Any time symptoms of eye or respiratory irritation occur, immediate first aid should be provided as described above, and medical attention should be obtained if irritation persists.

5. Fire Fighting Measures

Flammability: Non-combustible, non-explosive.

Extinguishing media: Use appropriate for surrounding materials. Prevent contamination of drains or water ways.

Hazardous Combustion products: May evolve toxic gases if strongly heated. Carbon and nitrogen oxides may be formed in any fire.

Instructions to firefighters: None specified.

6. Accidental Release Measures

Spills: This product is solid. Avoid inhalation of dust and contact with skin. Recover material by sweeping in collecting in suitable containers. Wet sweeping or vacuuming techniques can be used to minimise airborne dust generation. If airborne dust occurs, wear appropriate protective equipment (e.g. protective gloves, safety glasses, particulate respirator etc). Collect and place in sealable, labelled containers for later use or disposal.

Environmental precautions: Prevent spill from entering storm water/ sewer drains and watercourses. Leachate from this product may cause an increase in water pH if it flows into surrounding water areas (rivers, lakes etc).

If product is spilt into a waterway notify the Regional Council.

Protective Equipment: Equip responders and clean-up personnel with proper protection, including appropriate clothing, eye and face protection. Respiratory protection should be used as necessary to prevent dust exposure.

Containment: Contain and collect as any solid. Avoid actions that cause dust to become airborne. Do not breathe dust, and do not allow large quantities of dust or wetted material to contact skin or eyes.

7. Handling & Storage

Certified Handler: Not required.

Storage: Not applicable.

Additional Hazards when Processed: Dust will be generated when transferring this material. Use engineered controls and other practices to control dust. Personal Protective Equipment (PPE) should be used as necessary.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking, and again when leaving work.

8. Exposure Controls & Personal Protection

Exposure Limits: The following exposure limits are based on a time-weighted full-shift exposure, unless otherwise noted.

Ingredient	OSHA PEL(1)	ACGIH-TLV(2)	Other
Fly ash combustion residues(3) (amorphous calcium-aluminum silicates)	15 mg/m3 (total) 5 mg/m3 (respirable)	10 mg/m3 (total) 3 mg/m3 (respirable)	
Crystalline silica(3) (respirable fraction)	50 µg/m3 (respirable)	0.025 mg/m3 (respirable)	0.05 mg/m3 (respirable)(4)
Calcium oxide	5 mg/m3 (total)	2 mg/m3 (total)	2 mg/m3 (total)(4)

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Ingredient	OSHA PEL(1)	ACGIH-TLV(2)	Other
Potassium oxide	2 mg/m3 (total, ceiling)	2 mg/m3 (total)	2 mg/m3 (total, ceiling)(4)
Phosphorus pentoxide	None Established	None Established	

fn(1) OSHA PEL (Permissible Exposure Level) at 29 CFR 1910.1000)
fn(2) ACGIH-TLV (American Conference of Governmental Industrial Hygienists-Threshold Limit Values 2018)
fn(3) Crystalline silica is regulated by OSHA as Respirable Crystalline Silica (RCS) [29 CFR 1910.1053]. The amount of RCS in fly ash has been determined to be less than 4%.
fn(4) NIOSH REL (National Institute for Occupational Safety and Health Recommended Exposure Limit)

Engineering Controls:
Ventilation: Ensure adequate ventilation – optimise natural airflows. Local exhaust ventilation should be used to prevent excessively dusty conditions and to maintain dust levels below exposure levels, where necessary. Work areas should be cleaned regularly.

Personal Protection (PPE)
Eyes/Face: If generation of airborne dust is likely, protective eyewear (e.g. Safety glasses with side shields, safety goggles) is recommended. Safety eyewear should comply with AS/NZS 1337.
Skin: If generation of excessive dust is likely, the use of protective gloves is recommended. Consult your glove supplier for additional information on glove selection. Gloves should be selected in accordance with AS/NZS 2161.
Respiratory protection: May be required dependant on use. If engineering controls are insufficient to control airborne dust exposure, the use of a suitable Class P2 or P3 particulate respirator is recommended. At high dust levels, greater protection may be required. Respiratory protection must comply with AS/NZS 1716 and be maintained in accordance with AS/NZS 1715

9. Physical & Chemical Properties

Physical State: Granular solid.

Appearance: Flowable material—Various colors (gray to tan)

Odour: Essentially odourless.

Odour Threshold: Not applicable.

pH: < 11 (in water)

Evaporation Rate: Not applicable.

Melting Point: Not applicable.

Freezing Point: Not applicable.

Boiling Point: Not applicable.

Flashpoint: Not applicable.

Auto-Ignition Temperature: Not applicable.

Decomposition Temperature: Not applicable.

Flammability (solid, gas): Not applicable.

Lower Flammable Limit: Not applicable.

Upper Flammable Limit: Not applicable.

Vapor Pressure: Not applicable.

Relative Vapor Density at 20° C: Not applicable.

Relative Density: Not applicable.

Specific Gravity: 2.2 – 2.8

Solubility: Slightly soluble in water.

Partition Coefficient—N-Octanol/Water: Not applicable.

Viscosity: Not applicable.

Explosion Data—Sensitivity to Mechanical Impact: Not applicable.

Explosion Data—Sensitivity to Static Discharge: Not applicable.

10. Stability & Reactivity

Reactivity: Hazardous reactions are not expected to occur under normal conditions.

Chemical Stability: Stable.

Possibility of Hazardous Reactions: Hazardous polymerization or other reactions are not expected.

Conditions to Avoid: Material can become airborne in moderate winds. Dry material should be stored in silos or other structures. Material stored outdoors should be covered or dampened to reduce dusting.

Incompatible Materials: Not applicable.

Hazardous Decomposition Products: Not expected under normal conditions. Wetted material, which contains ammonia, may release ammonia gas, which may result in nuisance odor or potential harmful exposure in a confined area.

11. Toxicological Information

Likely Routes of Exposure

Skin Contact: Material may irritate unprotected skin.

Eye Contact: Material may cause serious irritation of unprotected eyes.

Inhalation: Respirable dust may be generated that if inhaled, can cause respiratory system irritation.

Inhalation: Respirable dust may be generated that if inhaled, can cause respiratory system irritation. Prolonged or repeated inhalation exposure may cause chronic respiratory illness, including silicosis and cancer.

Ingestion: Not expected to be an exposure route of concern.

Likely Routes of Exposure

Immediate Effects: Irritation of skin, eyes, and respiratory tract due to dust inhalation or exposure of eyes and skin to material.

Delayed and Chronic Effects: Inhalation of dust on a prolonged or repeated basis may result in chronic lung disease or silicosis, and may also result in lung cancer.

Numerical Measures of Toxicity

The acute and chronic effects of exposure to this product's dust have not been quantified.

Carcinogenicity

The ingredient quartz, also known as crystalline silica, has been determined to be carcinogenic by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP). Toxicological studies conducted on fly ash materials, including oral and inhalation repeated dose, as well as mutagenicity have shown no evidence of carcinogenic effects that, except for numerical percentage of crystalline silica and other potential carcinogenic substances included in OSHA GHHCS Guidance, classification as a carcinogen is not required. Reference: American Coal Ash Association Safety Data Sheet Guidance Document, May 2015.

No LC50 or LD50 has been established for Fly Ash, however, the following toxicity data has been determined for the components: Silica, Amorphous CAS 7631-86-9: LD50: 3,160 mg/kg (oral rat); Silica, crystalline quartz: NIF; Iron Oxide: NIF; Barium LD50: NIF5.

12. Ecological Information

Take necessary measure for the environment, including preventing material from entering waterways as leachate may influence the alkalinity of waterbodies in contact with water. No negative ecological effects from product are expected according to present state of knowledge.

Persistence in environment: No data available.

Biodegradability: No data available.

Bioaccumulation: No evidence for bioaccumulation potential.

13. Disposal Considerations

If practicable, spilled materials should be returned to the container for later use if it is not contaminated. Small amounts of material can be disposed of as trade waste or landfill in accordance with local authority guidelines. Bulk or contaminated product may be disposed of through an approved hazardous waste contractor. Disposal waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Notice 2017. Containers/packaging may only be recycled if clean and free of residue as to be non-hazardous. Prevent material from entering storm water and sewer drains.

14. Transport Information

Not classified as a Dangerous Good according to NZS 5433:200

15. Regulatory Information

HSNO Approval

HSNO Group Standard: Not Applicable, the product is considered non-hazardous. All ingredients are listed on the NZIoC.

16. Other Information

Disclaimer: This safety data sheet attempts to describe as accurately as possible the potential exposures associated with normal use of the product described herein. Health and safety precautions in the data sheet may not be adequate for all individuals and/or situations. Users have the responsibility to evaluate and use this product safely and to comply with all applicable laws and regulations.
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- END OF SDS

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