SAFETY DATA SHEET FLY ASH

OSHA Hazard Communication Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

SECTION 1. IDENTIFICATION

Product Name	Fly Ash
Chemical Name	Calcium Oxide, Calcium Carbonate, Calcium Hydroxide
Synonyms	Boiler Ash, Furnace Ash, Combustion Ash, Fly Ash, Fine Ash
Uses	De-Watering Sediments, Waste Solidification, Waste Fixation, Neutralization
Distributor	**Mintek Resources** 3725 Pentagon Blvd. Suite 100 Beavercreek, OH 45431 Phone: 937-431-0218
Emergency Contact	**VelocityEHS: (800) 255-3924** (MIS8507735)

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS03 Exclamation Mark

GHS05 Corrosion

Signal Word	Danger	
Hazard-Determining Components of Labeling	Calcium Oxide, Calcium Carbonate, Calcium Hydroxide	
Hazard Statements	H303	May be harmful if swallowed.
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H335	May cause respiratory irritation.
Precautionary Statements	P101	If medical advice is needed, have product container or label at hand.
	P102	Keep out of reach of children.
	P280	Wear protective gloves, clothing, eye protection.
	P281	Use personal protective equipment as required.
	P284	Wear respiratory protection.

SECTION 3. COMPOSITION

Component	Formula	% Wt.	CAS No.	PEL
Calcium Carbonate	$CaCO_3$	10-40	1317-65-3	10 mg/m^3
Calcium Oxide	CaO	10-60	1305-78-8	2 mg/m^3
Calcium Hydroxide	$Ca(OH)_2$	0-10	1305-62-0	5 mg/m^3
Calcium Magnesium Carbonate	$CaMg(CO_3)_2$	0-10	16389-88-1	10 mg/m^3
Silica-Crystalline Quartz	SiO_2	0-40	14808-60-7	0.1 mg/m^3 respirable
Aluminum Oxide	Al_2O_3	0-15	1344-28-1	10 mg/m^3
Ferric Oxide	Fe_2O_3	1-10	1309-37-1	15 mg/m^3
Magnesium Oxide	MgO	0-20	1309-48-4	5 mg/m^3
Sulfur Trioxide	SO_3	5-20	7704-34-9	10 mg/m^3

SECTION 4. FIRST AID MEASURES

Inhalation	**Acute**: Irritation, sore throat, cough, sneezing. **Chronic**: Persistent coughing and breathing problems. Long-term exposure to silica can cause a chronic lung disorder, silicosis.
Eyes	**Acute**: Severe irritation, intense tearing, burns. **Chronic**: Possible blindness when exposure is prolonged.
Skin	**Acute**: Removes natural skin oils, blotches, itching and superficial burns in case of sweating. **Chronic**: No known effects.
Ingestion	**Acute**: Sore throat, stomach aches, cramps, diarrhea, vomiting. **Chronic**: No known effects.

Treatments

Inhalation	Move victim to fresh air. Seek medical attention if necessary. If breathing has stopped, give artificial respiration.
Eyes	Immediately flush eyes with large amounts of water for at least 15 minutes. Pull back the eyelid to make sure all the lime dust has been washed out. Seek medical attention immediately. Do not rub eyes.
Skin	Flush exposed area with large amounts of water. Seek medical attention immediately.
Ingestion	Give large quantities of water or fruit juice. Do not induce vomiting. Seek medical attention immediately. Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	Non-flammable
Autoignition Temperature	Non-flammable
Inflammability Limits	None, Non-combustible solid, but will support combustion by liberation of oxygen.
Explosion Risk	None by itself, but heat produced by reaction with strong acids can generate steam and pressure.
Hazardous Combustion Products	Decomposes to produce calcium oxide (CaO), which can react with water to produce steam and pressure.
Extinguishing Media	Use dry chemical fire extinguisher. Do not use water or halogenated compounds, except that large amounts of water may be used to deluge small quantities of lime kiln dust. Use appropriate extinguishing media for surrounding fire conditions.
Fire Fighting Instructions	Keep personnel away from and upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (self-contained breathing apparatus).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Individual and Collective Precautions	Avoid creating conditions which release dust – use mechanical vacuums to remove dust from workspaces.
Avoid Inhalation of Dust	Wear respiratory protection – minimum NIOSH N-95 Dust Mask.
Cleaning Methods (Leaks & Spills)	Use personal protective equipment (eyes, skin, and inhalation, see Section 8). Use dry methods (vacuuming, sweeping) to collect spilled materials. Avoid generating dust. For large spills, evacuate area downwind of clean-up area operations to minimize dust exposure. For small spills, store spilled materials

	in dry, sealed plastic or metal containers. Dust residue on surfaces may be washed with water.
Precautions for the Protection of the Environment	May not be released into surface waters without controls (increases pH).
Waste Disposal	Dispose according to federal, provincial/state and local environmental regulations.

SECTION 7. HANDLING & STORAGE

Handling	In open air or in ventilated places, avoid skin and eye contact, avoid creating airborne dust.
Storage	Store in dry places sheltered from humidity. Keep away from acids. Keep out of reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

	OSHA PEL (mg/m^3)	ACGIH TLV (mg/m^3)	Ont. Reg. 833 TWAEV (mg/m^3)
Calcium Carbonate	15 (total dust), 5 (respirable)	10	10
Calcium Oxide	5	2	2
Calcium Hydroxide	-	5 (respirable)	5
Calcium Magnesium Carbonate	10	10	-
Calcium Magnesium Oxide	2	2	-
Magnesium Carbonate	15 (total dust) 5 (respirable)	5 10	5 10
Magnesium Oxide	15	10	10
Silica - Crystalline Quartz	2.5 (total dust), 0.8 (respirable)	0.5 (respirable)	0.1

Engineering Controls	Use ventilation and dust collection to control exposure to below applicable limits.

Individual Protection Measures (Personal Protective Equipment):

Respiratory Protection	Wear NIOSH N-95 Dust Mask.
Eye Protection	Eye protection (chemical goggles, safety glasses and/or face shield) should be worn where there is a risk of lime exposure. Contact lenses should not be work when working with lime products.
Hand Protection	Use clean dry gloves.
Skin Protection	Cover body with suitable clothes (long sleeves shirts and trousers). Use over the angle waterproof caustic resistant footwear.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

Appearance	Solid, brown/white/tan/gray, powder
Odor	Odorless
Odor Threshold	Not Applicable

pH	12.4 pH graduated solution at 25°C
Melting Point	1410°C
Boiling Point	1565°C
Flash Point	Not Applicable
Evaporation Rate	Not Applicable
Flammability	Not Applicable
Upper/Lower Flammability	Not Applicable
Vapor Pressure (+t°)	Non-Volatile
Vapor Density (air=ml)	Non-Volatile
Relative Density	720-1130 kg/ m^3
Solubility	0.100 – 1.125g/100g – reactive with water to product $Ca(OH)_2$ with small amounts of heat
Partition Coefficient	Not Applicable
Auto-Ignition Temperature	Not Applicable
Decomposition Temperature	580°C
Viscosity	Not Applicable

SECTION 10. STABILITY & REACTIVITY

Stability	Stable products, not very soluble.
Decomposition Temperature	580°C, forms calcium oxide (CaO) and water
Reactivity	Reacts with acids to form calcium salts while generating heat. Reacts with carbon dioxide in air to form calcium carbonate.
Conditions to Avoid	Vicinity of incompatible materials.
Incompatibility	• Acids • Reactive Fluoridated • Brominated or Phosphorous Compounds • Aluminum (may form hydrogen gas) • Reactive Powdered Metals • Organic Acid Anhydrides • Nitro-organic Compounds • Interhalogenated Compounds
Hazardous Decomposition Products	Calcium oxide (CaO)

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity	LD_{50} oral (rat) for calcium hydroxide is 7340 mg/kg. This product is not listed by MSA, OSHA, or IARC as a carcinogen, but this product may contain crystalline silica, which has been classified by IARC as (Group 1) carcinogenic to humans when inhaled in the form of quartz or cristobalite. No reported Carcinogenicity, Reproductive Effects, Teratogenicity or Mutagenicity.
Exposure Limits	Refer to Section 8
Irritancy	Can cause severe irritation of eyes, skin, respiratory tract, and gastrointestinal tract.
Chronic Exposure:	Inhalation of silica can cause a chronic lung disorder, silicosis.

SECTION 12. ECOLOGICAL INFORMATION

Alkaline substance that increases pH to 12.4 in a saturated water solution at 25ºC.
Calcium hydroxide gradually reacts with CO_2 in air to form calcium carbonate ($CaCO_3$).
Calcium carbonate is ecologically neutral.
Uncontrolled spillage in surface waters should be avoided since the increase pH could be detrimental to fish.
Harmful to aquatic life in high concentration.

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose according to federal, provincial/state, and local environmental regulations.

SECTION 14. TRANSPORT INFORMATION

Classification

TDG: Not listed for ground transportation.
HMR: Not listed for ground transportation.

TDG: Transportation of Dangerous Goods Regulation (Canada)
HMR: Hazardous Materials Regulation (USA)

SECTION 15. Regulatory Information

Symbol

WHMIS RATING
D2A, E
NFPA RATING
HEALTH-3 SPECIFIC HAZARD – ALK FLASH POINTS-0 REACTIVITY-1
HMIS RATING
HEALTH-2 SPECIFIC HAZARD – ALK FLASH POINTS-0 REACTIVITY-1

SECTION 16. OTHER INFORMATION

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