

Section 1: IDENTIFICATION

Product Name: Coal Ash (Fly Ash, Bottom Ash)
Synonyms: Not available.
Product Use: For use in construction and concrete.
Restrictions on Use: Not available.
Manufacturer/Supplier: Ashcor Technologies Ltd.
5302 Forand St SW
Calgary Alberta Canada
T3E 8B4
Phone Number: 403-209-6011
Emergency Phone: 403-209-6011
Date of Preparation of SDS: February 10, 2021

Section 2: HAZARD(S) IDENTIFICATION**GHS INFORMATION**

Classification: Skin Irritation, Category 2
Eye Irritation, Category 2A
Carcinogenicity, Category 1A
Specific Target Organ Toxicity (Repeated Exposure), Category 1

LABEL ELEMENTS**Hazard****Pictogram(s):****Signal Word:** Danger

Hazard Statements: Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, protective clothing and eye protection.

Response: IF ON SKIN: Wash with plenty of water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical attention.
Get medical attention if you feel unwell.
If skin irritation occurs: Get medical attention.
If eye irritation persists: Get medical attention.
Take off contaminated clothing and wash it before reuse.

Storage: Not applicable.

Disposal: Dispose of contents and container in accordance with applicable regional, national and local laws and regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: 100% of this product mixture consists of ingredient(s) of unknown acute toxicity.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% wt./wt.
Ashes	Fly ash	68131-74-8	90 - 100
Silica	Silicon dioxide	7631-86-9	50 - 70
Aluminum oxide (Al ₂ O ₃)	Aluminum oxide	1344-28-1	10 - 25
Calcium oxide (CaO)	Calcium oxide	1305-78-8	3 - 7
Iron oxide	Not available.	1309-37-1	3 - 7
Sulfur trioxide	Not available.	7446-11-9	0.1 - 0.5

Section 4: FIRST-AID MEASURES

Inhalation: If inhaled: Call a poison center or doctor if you feel unwell.

Acute and delayed symptoms and effects: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Acute pneumoconiosis from overwhelming exposure to Silica (SiO₂) dust has occurred. Coughing and irritation of throat are early symptoms.

Eye Contact: If in eyes: Rinse cautiously with water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Acute and delayed symptoms and effects: Causes serious eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact: If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.

Acute and delayed symptoms and effects: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Ingestion: If swallowed: Call a poison center or doctor if you feel unwell. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Acute and delayed symptoms and effects: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

Note to Physicians: Symptoms may not appear immediately.

Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Not flammable or combustible by OSHA/WHMIS criteria.

Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.

Sensitivity to Static Discharge: This material is not sensitive to static discharge.

MEANS OF EXTINCTION

Suitable Extinguishing Media: Small Fire: Dry chemical, CO₂, water spray or regular foam.

Large Fire: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk.

Unsuitable Extinguishing Media: Not available.

Products of Combustion: Oxides of carbon. Oxides of calcium.

Protection of Firefighters: Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures: Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Personal Precautions: Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

Environmental Precautions: Keep out of drains, sewers, ditches, and waterways.

Methods for Containment: Do not flush to sewer or allow to enter waterways.

Methods for Clean-Up: Sweep up and shovel into suitable containers for disposal.

Other Information: See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Handling:

Do not swallow. Do not breathe dust. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. See Section 8 for information on Personal Protective Equipment.

Storage:

Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component

Fly ash [CAS No. 68131-74-8]

ACGIH: 10 mg/m³ (TWA) (Inhalable.); 3 mg/m³ (TWA) (Respirable.); For Particles (Insoluble or Poorly Soluble) Not Otherwise Specified

OSHA: 15 mg/m³ (Total dust) (TWA), 5 mg/m³ (Respirable fraction) (TWA); For Particulates Not Otherwise Regulated (PNOR).

Silicon dioxide [CAS No. 7631-86-9]

ACGIH: 0.025 mg/m³ (TWA); A2; Respirable particulate matter (2009); For Silica, Crystalline

OSHA: 30 / (%SiO₂ + 2) mg/m³ Quartz (Total dust) (TWA), 10 / (%SiO₂ + 2) mg/m³ Quartz (Respirable) & 250 / (%SiO₂ + 5) mppcf Quartz (Respirable) (TWA); See Table Z3.

0.1 mg/m³ (As respirable quartz) (TWA) [Vacated];

Aluminum oxide [CAS No. 1344-28-1]

ACGIH: 1 mg/m³ (TWA); A4; Respirable particulate matter (2007); For Aluminum metal and Insoluble compounds

OSHA: 15 mg/m³ (Total dust) (TWA), 5 mg/m³ (Respirable fraction) (TWA); For Particulates Not Otherwise Regulated (PNOR).

Calcium oxide [CAS No. 1305-78-8]

ACGIH: 2 mg/m³ (TWA); (1990)

OSHA: 5 mg/m³ (TWA);

Iron oxide [CAS No. 1309-37-1]

ACGIH: 5 mg/m³ (TWA); A4; Respirable particulate matter (2005)

OSHA: 10 mg/m³ (Fume) (TWA);

Sulfur trioxide [CAS No. 7446-11-9]

ACGIH: No TLV established.

OSHA: No PEL established.

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

TWA: Time-Weighted Average

Engineering Controls:

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



Eye/Face Protection:

Wear chemical safety goggles. Indirect vented, dust-tight goggles are required if dust is generated when handling this product. Ensure that eyewash stations are close to the

workstation location. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection: Wear protective gloves. Consult manufacturer specifications for further information.

Skin and Body Protection: Wear protective clothing.

Respiratory Protection: If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4, with particulate filter, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

General Hygiene Considerations: Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Grey to black or tan to brown powder.
Colour:	Grey to black or tan to brown.
Odour:	Odourless.
Odour Threshold:	Not available.
Physical State:	Solid.
pH:	Not available.
Melting Point / Freezing Point:	Not available.
Initial Boiling Point:	Not available.
Boiling Range:	Not available.
Flash Point:	Not available.
Evaporation Rate:	Not available.
Flammability (solid, gas):	See Section 5.
Lower Flammability Limit:	Not available.
Upper Flammability Limit:	Not available.
Vapor Pressure:	Not available.
Vapor Density:	Not available.

Relative Density:	Not available.
Solubilities:	Slightly soluble in water.
Partition Coefficient: n-Octanol/Water:	Not available.
Auto-ignition Temperature:	Not available.
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Percent Volatile, wt. %:	Not available.
VOC content, wt. %:	Not available.
Density:	Not available.
Coefficient of Water/Oil Distribution:	Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity:	Contact with incompatible materials. Exposure to heat.
Chemical Stability:	Stable under normal storage conditions.
Possibility of Hazardous Reactions:	Calcium oxide reacts with water to form calcium hydroxide.
Conditions to Avoid:	Contact with incompatible materials. Exposure to heat.
Incompatible Materials:	Acids. Oxidizers. Aluminum.
Hazardous Decomposition Products:	Not available.

Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Product Toxicity

Oral:	Not available.
Dermal:	Not available.
Inhalation:	Not available.

Component Toxicity

Component	CAS No.	LD ₅₀ oral	LD ₅₀ dermal	LC ₅₀
Fly ash	68131-74-8	Not available.	Not available.	Not available.
Silicon dioxide	7631-86-9	> 5000 mg/kg (rat)	Not available.	> 2190 mg/m ³ (rat); 4H
Aluminum oxide	1344-28-1	Not available.	Not available.	Not available.
Calcium oxide	1305-78-8	Not available.	Not available.	Not available.
Iron oxide	1309-37-1	Not available.	Not available.	Not available.
Sulfur trioxide	7446-11-9	Not available.	Not available.	Not available.

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion. Skin absorption.

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs.

Symptoms (including delayed and immediate effects)

Inhalation: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Acute pneumoconiosis from overwhelming exposure to Silica (SiO₂) dust has occurred. Coughing and irritation of throat are early symptoms.

Eye: Causes serious eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Ingestion: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Skin Sensitization: Not available.

Respiratory Sensitization: Not available.

Medical Conditions Aggravated By Exposure: Not available.

EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure)

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs.

Chronic Effects: Hazardous by OSHA/WHMIS criteria. May cause chronic effects. Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to Silica (SiO₂) can cause silicosis, a form of lung scarring that can cause shortness of breath, reduced lung function, and in severe cases, death. Chronic inhalation of Calcium oxide may cause nasal septum ulceration and perforation. Prolonged inhalation of iron oxide dust is known to produce a condition known as siderosis. On X-rays it appears to be a benign pneumoconiosis and is not associated with pulmonary fibrosis or disability unless there is concurrent exposure to other fibrosis-producing materials such as silica. Repeated or prolonged inhalation of Sulfur trioxide aerosol may cause effects on the lungs and teeth, resulting in tooth erosion.

Carcinogenicity: May cause cancer. Respirable Silica (SiO₂) dust is classified as a human carcinogen. Strong inorganic acid mists containing Sulfur trioxide are carcinogenic to humans.

Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Silicon dioxide	A2	Group 3	List 1	OSHA Carcinogen.	Listed.
Aluminum oxide	A4	Not listed.	Not listed.	Not listed.	Not listed.
Iron oxide	A4	Group 3	Not listed.	Not listed.	Not listed.

Mutagenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects

Teratogenicity: Not available.



SAFETY DATA SHEET

Coal Ash (Fly Ash, Bottom Ash)

Date of Preparation: February 10, 2021

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Persistence / Degradability: Not available.

Bioaccumulation / Accumulation: Not available.

Mobility in Environment: Not available.

Other Adverse Effects: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)

Proper Shipping Name: Not regulated.

Class: Not applicable.

UN Number: Not applicable.

Packing Group: Not applicable.

Label Code: Not applicable.

Canada Transportation of Dangerous Goods (TDG)

Proper Shipping Name: Not regulated.

Class: Not applicable.

UN Number: Not applicable.

Packing Group: Not applicable.

Label Code: Not applicable.

Section 15: REGULATORY INFORMATION

Chemical Inventories

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.



SAFETY DATA SHEET

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Federal Regulations

United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Aluminum oxide	Not listed.	Not listed.	Not listed.	313	Not listed.	Not listed.
Sulfur trioxide	100	100	Not listed.	Not listed.	Not listed.	10000

State Regulations

Massachusetts

US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

Component	CAS No.	RTK List
Silicon dioxide	7631-86-9	Listed.
Aluminum oxide	1344-28-1	Listed.
Calcium oxide	1305-78-8	Listed.
Iron oxide	1309-37-1	Listed.
Sulfur trioxide	7446-11-9	E

Note: E = Extraordinarily Hazardous Substance

New Jersey

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Silicon dioxide	7631-86-9	SHHS
Aluminum oxide	1344-28-1	Listed.
Calcium oxide	1305-78-8	SHHS
Iron oxide	1309-37-1	Listed.
Sulfur trioxide	7446-11-9	SHHS

Note: SHHS = Special Health Hazard Substance

Pennsylvania

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Component	CAS No.	RTK List
Silicon dioxide	7631-86-9	Listed.
Aluminum oxide	1344-28-1	E
Calcium oxide	1305-78-8	Listed.
Iron oxide	1309-37-1	Listed.
Sulfur trioxide	7446-11-9	E

Note: E = Environmental Hazard

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS: February 10, 2021

Version: 1.0

GHS SDS Prepared by: Deerfoot Consulting Inc.

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