

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Fly Ash and Bottom Ash (Ash), Coal Fly Ash, Class F Fly Ash, Class C Fly Ash, Type CI Fly Ash, Type CH Fly Ash, Type F Fly Ash, Lignite Coal Fly Ash, Subbituminous Coal Fly Ash, Anthracite Coal Fly Ash, Bituminous Coal Fly Ash, Bottom Ash, Ash

Synonyms: Fly Ash and Bottom Ash (Ash)

1.2. Intended Use of the Product

Fly Ash and Bottom Ash are used as a supplementary cementitious or pozzolanic material for cement, concrete and concrete products. It is also used in soil stabilization and as filler in asphalt and other products that are widely used in construction.

1.3. Name, Address, and Telephone of the Responsible Party

Company

Lafarge US

8700 West Bryn Mawr Avenue, Suite 300

Chicago, IL 60631

Information: 773-372-1000 (9am to 5pm CST)

Email: SDSinfo@Lafarge.com

Website: www.lafargeholcim.us

Company

Lafarge Canada

Eastern Canada

6509 Airport Road

Mississauga, ON L4V 1S7

Phone: (905) 738-7070

Western Canada

#300 115 Quarry Park Road SE

Calgary, AB T2C 5G9

Phone: (403) 271-9110

Website: www.lafarge.ca

1.4. Emergency Telephone Number

Emergency Number :

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Eye Irrit. 2B H320

Carc. 1A H350

STOT RE 1 H372

Full text of hazard classes and H-statements : see Section 16.

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :



GHS08

Signal Word (GHS-US/CA) :

Danger

Hazard Statements (GHS-US/CA) :

H320 - Causes eye irritation.

H350 - May cause cancer (Inhalation).

H372 - Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Precautionary Statements (GHS-US/CA) : P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe dust.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

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P280 - Wear protective gloves, protective clothing, and eye protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) or sensitivity to hexavalent chromium can be aggravated by exposure.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Ashes, residues	(CAS-No.) 68131-74-8	< 100	Eye Irrit. 2B, H320
Quartz	(CAS-No.) 14808-60-7	< 10	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372

Fly ash and bottom ash are byproducts from the combustion of coal. Trace amounts of chemicals may be detected during chemical analysis. For example the chemicals identified can include carbon and complex silicates or oxides of aluminum (Al), calcium (Ca), magnesium (Mg), sodium (Na), sulfur (S), potassium (K), titanium (Ti), iron (Fe) and phosphorus (P). Chemical identity: $MxOySiO_2$ (M = Al, Ca, Mg and other minor metal, with bound silica (SiO_2)). Chemical analysis of fly ash and bottom ash also indicate the presence of trace amounts of metals, such as: Arsenic (As), Barium (Ba), Beryllium (Be), Cobalt (Co), Lead (Pb), and Manganese (Mn).

Full text of H-phrases: see Section 16.

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: May cause cancer. Causes damage to organs through prolonged or repeated exposure. Causes eye irritation.

Inhalation: The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

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Skin Contact: Prolonged exposure may cause skin irritation.

Eye Contact: Causes eye irritation. Symptoms may include: stinging, tearing, redness, and swelling of eyes.

Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: May cause cancer. Causes damage to organs through prolonged or repeated exposure.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Silicon oxides.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not handle until all safety precautions have been read and understood.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Cutting, crushing or grinding crystalline silica-bearing materials may release respirable crystalline silica, a known carcinogen. Use all appropriate measures of dust control or suppression and Personal Protective.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

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Storage Conditions: Store away from incompatible materials.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas.

7.3. Specific End Use(s)

Fly Ash and Bottom Ash are used as a supplementary cementitious or pozzolanic material for cement, concrete and concrete products. It is also used in soil stabilization and as filler in asphalt and other products that are widely used in construction.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in Section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Quartz (14808-60-7)		
Mexico	OEL TWA (mg/m ³)	0.1 mg/m ³ (respirable fraction)
USA ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
USA ACGIH	ACGIH chemical category	A2 - Suspected Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	50 µg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.05 mg/m ³ (respirable dust)
USA IDLH	US IDLH (mg/m ³)	50 mg/m ³ (respirable dust)
Alberta	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate)
British Columbia	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable)
Manitoba	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
New Brunswick	OEL TWA (mg/m ³)	0.1 mg/m ³ (respirable fraction)
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
Nunavut	OEL TWA (mg/m ³)	0.05 mg/m ³ (respirable fraction)
Northwest Territories	OEL TWA (mg/m ³)	0.05 mg/m ³ (respirable fraction)
Ontario	OEL TWA (mg/m ³)	0.1 mg/m ³ (designated substances regulation-respirable)
Prince Edward Island	OEL TWA (mg/m ³)	0.025 mg/m ³ (respirable particulate matter)
Québec	VEMP (mg/m ³)	0.1 mg/m ³ (respirable dust)
Saskatchewan	OEL TWA (mg/m ³)	0.05 mg/m ³ (respirable fraction)
Yukon	OEL TWA (mg/m ³)	300 particle/mL

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

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Appearance	: Gray/Black or Brown/Tan Powder, May Contain Solidified Masses
Odor	: Odorless
Odor Threshold	: Not available
pH	: 4 - 12
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: > 1000 °C (> 1832 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 2.0 - 2.9 (Water = 1)
Solubility	: Water: < 5 % (Slightly)
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2. Chemical Stability:** Stable under recommended handling and storage conditions (see Section 7).
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Incompatible materials.
- 10.5. Incompatible Materials:** Strong acids, strong bases, strong oxidizers. Dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas.
- 10.6. Hazardous Decomposition Products:** None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

pH: 4 - 12

Eye Damage/Irritation: Causes eye irritation.

pH: 4 - 12

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked

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by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.

Symptoms/Injuries After Eye Contact: Causes eye irritation. Symptoms may include: stinging, tearing, redness, and swelling of eyes.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: May cause cancer. Causes damage to organs through prolonged or repeated exposure.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Quartz (14808-60-7)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
Ashes, residues (68131-74-8)	
LD50 Oral Rat	> 2000 mg/kg
Quartz (14808-60-7)	
IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

12.2. Persistence and Degradability

Fly Ash and Bottom Ash (Ash)	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Fly Ash and Bottom Ash (Ash)	
Bioaccumulative Potential	Not established.

12.4. Mobility in Soil

Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

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SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Fly Ash and Bottom Ash (Ash)	
SARA Section 311/312 Hazard Classes	Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Carcinogenicity Health hazard - Serious eye damage or eye irritation
Quartz (14808-60-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Ashes, residues (68131-74-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

Quartz (14808-60-7)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
Quartz (14808-60-7)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List	

15.3. Canadian Regulations

Quartz (14808-60-7)	
Listed on the Canadian DSL (Domestic Substances List)	
Ashes, residues (68131-74-8)	
Listed on the Canadian DSL (Domestic Substances List)	

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 08/02/2018

Revision

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Carc. 1A	Carcinogenicity Category 1A
Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H320	Causes eye irritation
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure

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An electronic version of this SDS is available: for Canada on www.lafarge.ca under the Health and Safety Section, and for US on www.lafargeholcim.us under the Our Solutions and Products Section. Please direct any inquiries regarding the content of this SDS to SDSinfo@Lafarge.com.

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