Safety Data Sheet

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name

West Fraser Wood Ash

Supplier/ Manufacturer

West Fraser
1 Toronto Street, Suite 600
Toronto, Ontario
M5C 2W4
www.westfraser.com

EMERGENCY CONTACT

Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Synonym Wood Fly Ash

Trade Name *None*

Product Description Mixture of wood ash, fly ash and bottom ash.
Uses This product is used for soil fertilization and/or soil stabilization.

SECTION 2. HAZARD (S) IDENTIFICATION

GHS Classification/ OHSA HCS 2012

Skin irritation (Category 2)
Serious eye damage (Category 1)
Carcinogenicity (Category 1A)
Specific target organ toxicity, single exposure, Respiratory tract irritation (Category 3)
Specific target organ toxicity, repeated exposure (Category 1)

Signal Word **DANGER**

Hazard Statements
Causes serious eye damage
May cause lungs cancer by inhalation of dust.
Causes damage to organs through prolonged or repeated exposure by inhalation of dust.
Causes skin irritation
May cause respiratory irritation

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 skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing and eye protection.

Response	IF ON SKIN: Wash with soap and water. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposed or concerned: Get medical advice or attention. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash before reuse.
Storage	Store in a well ventilated place. Keep container tightly closed.
Disposal	Dispose of contents and container with local, regional national or international regulations.

WHIMS Classification **E, D2A**

Emergency Overview Handling wet ash may be irritating to eyes, skin.

POTENTIAL HEALTH EFFECTS:

Potential Acute Health Effects

Inhalation	Exposure to respiratory system may cause irritation and burn sensation.
Skin	May cause irritation of the skin. Wet ash is corrosive and may cause burns to skin.
Eyes	May cause severe irritation to the eye. Wet ash is corrosive and may cause burns and damages to eyes.
Ingestion	May cause gastro-intestinal irritation with nausea and vomiting.
Medical conditions aggravated by overexposure	Existing respiratory disorders, pre-existing skin or eye conditions may be aggravated by exposure to ash dust.

Potential Chronic Health Effects

Chronic effects	No known studies have determined that exposure to ash causes chronic effects. Listed below is the data available on the identified ingredients. Prolonged and repeated exposures to calcium carbonate or aluminum oxide dust may cause damages to the respiratory tract. Long exposures to respirable crystalline silica dust can lead to respiratory disease silicosis. Simple silicosis generally shows no symptoms, but with continued exposure it can lead to shortness of breath and small airway obstruction.
Carcinogenicity	Carcinogen. See section 11 Toxicological Information
Mutagenicity	See section 11 Toxicological Information
Sensitization	See section 11 Toxicological Information

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt. %
Ash (contains amorphous material and trace amount of metals below 0.1%)	68131-74-8	82-89
Silicate Crystalline Quartz (SiO_2)	14808-60-7	7-9
Calcium Carbonate ($CaCO_3$)	1305-78-8	1-2
Aluminum Oxide (Al_2O_3)	1344-28-1	1-2
Illite $(K,Ca,Na)AlSi_3O_8$	12173-60-3	1-2
Feldspar $(K,H_3O)Al_2(Si_3Al)O_{10}(OH)_2 \bullet xH_2O$	68476-25-5	1-3

SECTION 4. FIRST AID MEASURE

Eye Contact	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes, holding lids apart to ensure flushing of each entire eye. If irritation persists, get medical attention immediately.
Skin Contact	In case of skin contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention if rash or persistent irritation or dermatitis occurs.

Inhalation	Wash clothing contaminated with ash dust or wet ash before reuse. If inhaled, remove to fresh air. Get medical advice if persistent irritation, severe coughing or breathing difficulty occurs.
Ingestion	Not likely to occur. Rinse mouth out with water. Never give anything by mouth if victim is unconscious or convulsing. If discomfort occurs, get medical attention.
Notes to Physician	Respiratory ailments or pre-existing skin conditions may be aggravated by exposure to ash dust.

SECTION 5. FIRE FIGHTING MEASURES

Flammability of the Product	Not Flammable
Extinguishing Media	Use appropriate extinguisher for surrounding fire. Could be sand, fog spray or fine water mist.
Hazardous Combustion Products	No information available.
Special Fire-Fighting Equipment/Procedure	Firefighters must wear fire resistant protective equipment. Wear self-contained breathing apparatus with full face piece operated under positive pressure demand mode.
Fire Hazards in Presence of Various Substances	Not Flammable
Explosion Hazards in Presence of Various Substances	None.
Sensitivity/mechanical impact	None
Sensitivity/static discharge	None.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	See protective measures in section 8.
Spill and Leak	Avoid generating dusty conditions. If small spill, clean-up by sweeping or washing with water. For large spill, handle wet if possible and shovel up or vacuuming to clean spill. Ensure an HEPA filter is installed on the vacuum device to avoid release particulates in the environment during clean-up. Do not wash ash down sewage and drainage systems.

SECTION 7. HANDLING AND STORAGE

Safe Handling Procedures	**AVOID DUST CONTACT WITH EYES AND SKIN. AVOID BREATHING DUST.** Use in a well-ventilated area. Use in a manner that avoids creating "clouds" of airborne dust. Keep bulk ash dry until used. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved. Do not eat, do not drink and not smoke during use. Wash thoroughly after handling. Wash clothing before reuse. Piles of ash main retain heat for several hours. Be careful when handling ash or stepping on piles; it may be hot and unstable. Properly ground all pneumatic conveyance systems. The potential exists for static build-up and static discharge when moving ash through a plastic, non-conductive, or non-grounded pneumatic conveyance system. The static discharge may result in damage to equipment and injury to workers.
Storage Requirement	Ash should be stored and transported in a covered bin or container.
Engulfment Hazard	To prevent burial or suffocation, do not enter a confined space such as a silo, bin, bulk truck or vessel that stores or contains ash. Ash can buildup or adhere to the wall of a confined space. The ash can collapse, release or fall unexpectedly.
Incompatibility	Avoid contact with strong acids and oxidizing agents. Avoid open flame.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ingredients	USA ACGIH (2019)	USA OSHA 29CFR1910.1000	QUEBEC OSHA (OEL S-2.1, r.15 - 2020)	ONTARIO OSHA OEL-reg 833 (2013)
Ash (contains amorphous material and trace of metals below 0.1%)	**TWA (I) as PNOS** 10 mg/m^3 **TWA[1] (R) as PNOS** 3 mg/m^3	**PEL-TWA (T) as PNOR** 15 mg/m^3 **PEL-TWA (R) as PNOR** 5 mg/m^3	**TWAEV (T) as PNOC** 10 mg/m^3	**TWA (I) as PNOS** 10 mg/m^3 **TWA[1] (R) as PNOS** 3 mg/m^3
Crystalline Silica Quartz (SiO_2)	**TVL-TWA (R)** 0.025 mg/m^3	**PEL-TWA (T)** 30/(%SiO2 + 2) mg/m^3 **PEL – TWA (R)** 10/(%SiO2 +2) mg/m^3	**TWAEV (R)** 0.1 mg/m^3	**TWAEV (R)** 0.1 mg/m^3
Calcium Carbonate ($CaCO_3$)	**TWA (I) as PNOS** 10 mg/m^3 **TWA (R) as PNOS** 3 mg/m^3	**PEL-TWA (T) as PNOR** 15 mg/m^3 **PEL-TWA[1] (R)** 5 mg/m^3	**TWAEV (T) as PNOC** 10 mg/m^3	**TWA (I) as PNOS** 10 mg/m^3 **TWA[1] (R) as PNOS** 3 mg/m^3
Aluminum Oxide (Al_2O_3)	**TVL-TWA (R)** 1 mg/m^3	**PEL-TWA (T) as PNOR** 15 mg/m^3 **PEL-TWA (R) as PNOR** 5 mg/m^3	**TWAEV (T)** 10mg/m^3	**TWAEV (T)** 10mg/m^3
Illite	**TWA (I) as PNOS** 10 mg/m^3 **TWA (R) as PNOS** 3 mg/m^3	**PEL-TWA (T) as PNOR** 15 mg/m^3 **PEL-TWA (R) as PNOR** 5 mg/m^3	**TWAEV (T) as PNOC** 10 mg/m^3	**TWA (I) as PNOS** 10 mg/m^3 **TWA (R) as PNOS** 3 mg/m^3
Feldspar	**TWA (I) as PNOS** 10 mg/m^3 **TWA (R) as PNOS** 3 mg/m^3	**PEL-TWA (T) as PNOR** 15 mg/m^3 **PEL-TWA (R) as PNOR** 5 mg/m^3	**TWAEV (T) as PNOC** 10 mg/m^3	**TWA (I) as PNOS** 10 mg/m^3 **TWA (R) as PNOS** 3 mg/m^3

(R) Respirable Fraction Dust (T) Total Dust (I) Inhalable Dust

Engineering Controls

Enclose conveying systems whenever feasible to prevent ash from becoming airborne. Wetting ash with water will reduce airborne dust. If a wet method is not feasible, local exhaust ventilation may be needed to maintain airborne concentration below the recommended exposure limits.
Eyewash stations are recommended.

Personal Protection

Eyes **AVOID CONTACT WITH EYES.**
Use safety glasses with side shields or dust resistant safety goggles. Suitable eye protection should always be worn whenever manual or mechanical handling and/or using this product.
For more details refer to ANSI or CSA Standards.

Body **AVOID CONTACT WITH SKIN.**
Wear Coverall's. Long pants and shirts should be worn to reduce contact with skin. Remove and wash dust contaminated clothing before reuse.

Respiratory **AVOID BREATHING DUST.**
When engineering controls and work practices are not effective in controlling exposure below the recommended exposure limits, wear suitable respiratory protection. If respirator required, use NIOSH/MSHA approved air-purifying N95 or higher. Consult the NIOSH pocket guide for more details.
http://www.cdc.gov/niosh/npg/npgd0684.html
If the exposure concentration is unknown, any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode must be worn.

Hands **AVOID CONTACT WITH SKIN.**
Wear impermeable rubber gloves to protect skin irritation from contact with wet ash. If the ash is dry, leather, canvas or clothe gloves can be worn.

Advice on general occupational hygiene	Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before accessing to eating area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid	**Odor**	Slight burnt or charcoal odor
Appearance	Grey/black powder which may contain solidified masses	**Threshold Odor**	None
pH	12.7 at 1% solution	**Color**	Light grey to black
Melting /Freezing point (ºC)	Not applicable	**Vapor pressure (@20 ºC)**	Not applicable
Boiling point (ºC)	Not applicable	**Vapor density (Air=1)**	Not applicable
Flash point (ºC)	Not applicable	**Solubility (in water)**	Slight (<5%)
Evaporation rate	Not applicable	**Coefficient of water/oil distribution**	Not applicable
Auto-ignition temperature	Not available	**Decomposition temperature**	Not applicable
Flammability (Solid, gas)	Not flammable		
Upper flammability/explosive limit (% by volume)	Undetermined (varies with composition particle size, moisture level, rate of heating and dust concentration)		
Lower flammability/explosive limit (% by volume)	Not applicable Ash dust explosion is possible if in contained area and in presence of a source of ignition (flame, heat, static discharge, etc.).		
Relative density (@25 ºC)	Not applicable		
Viscosity	Not applicable		

SECTION 10.STABILITY AND REACTIVITY

Reactivity	Not applicable
Stability	Stable under normal conditions
Possible hazardous reactions	Not hazardous reactions will occur
Conditions to avoid	Keep away of ignition sources (excessive heat, open flames, sparks) and incompatible materials
Materials to avoid and incompatibility	Ash dust can ignite if it comes in contact with strong acids, ammonium salts, aluminum metal and strong oxidizing agents.
Hazardous decomposition products	None.

SECTION 11.TOXICOLOGICAL INFORMATION

Routes of exposures	Inhalation, skin and eyes contact
Toxicological data	No test data exists on the purchased form product. Listed below is the data available on individual chemical ingredients entering in the composition of the ash dust. Exposure to ash dust may cause asthmatic symptoms and signs.

Chemical ingredients	LD_{50}		LC_{50} (4-hours)		GHS
	Oral	Dermal	Inhalation	Irritation	
Crystalline Silica	>500 mg/kg (rat)	Not available	Not available	----	Carcinogenicity Cat.1A STOT RE Cat.1
Calcium Carbonate	6450 mg/kg (rat)	Not available	Not available	----	Acute toxicity, Oral Cat.5 Skin Irrit. Cat.2 Eye Dam. Cat.1 STOT SE Cat.3 STOT RE Cat.1
Aluminum Oxide	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)	>2.6 ml/L/4h	----	STOT SE Cat.3 STOT RE Cat.1
Ash	Not available	Not available	Not available	Not available	Not available
Illite	Not available	Not available	Not available	Not available	Not available
Feldspar	Not available	Not available	Not available	Not available	Not available

Skin Irritation

CAUSES IRRITATION

Dry skin, discomfort and irritation may be observed after skin contact exposure to ash dust.

Eye Irritation

CAUSES SEVERE IRRITATION AND EYE DAMAGE

Exposure to ash dust may cause immediate or delayed irritation or inflammation.

Mutagenicity

No test data available on the product itself. Data available on identified ingredients listed gave negative result.

Carcinogenicity

No test data available on the product itself. Data available on identified ingredients are listed below.

Crystalline Silica (Quartz)

IARC (Group 1) Human carcinogen
ACGIH (Group A2) Suspected human carcinogen
NTP (Group 1) Known to be carcinogen

The International Agency for Research on Cancer (IARC) concluded that there was "sufficient evidence in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "sufficient evidence in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)." The IARC evaluation noted that not all industrial circumstances studied showed evidence of carcinogenicity. For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, Silica, Some Silicates..." (1997).

The National Toxicology Program's (NTP) Eleventh Annual Report on Carcinogens classifies "silica, crystalline (respirable size)" as a known human carcinogen.

Chronic Health Effects

Crystalline Silica (Quartz)

SILICOSIS

- Serious disabling lung disease that can occur after many years (20 – 45 years) of prolonged or repeated exposures to respirable crystalline silica dust to level above the OEL
- Symptoms will include: Shortness of breath, progressively more difficult breathing (with or without exertion), cough, fever, fatigue, chest pain and weight loss.
- Individual with silicosis may not have obvious signs or symptoms of disease and are particularly susceptible to tuberculosis.
- Three advanced forms of silicosis

Simple/Chronic Silicosis	Accelerated Silicosis	Acute Silicosis
• Most common type of silicosis. • Long-term exposure (10-30 years) to relatively low concentrations. • Lung lesion <1 cm in diameter. • Primarily located in the upper lung area. • Mild impairment of lung functioning. • Disease may be progressive and develop into complicated/progressive massive fibrosis (PMF).	• Very rare. • Exposure to high concentrations over a short period (5-10 years). • Lung lesion can appear within 5 years following the initial exposure. • Fast progression of the disease. • Similar to simple silicosis except that the lung lesions appear earlier and the progression is more rapid. • Individual often develop rheumatoid arthritis and other autoimmune disorders. • Disease may be progressive and develop into progressive massive fibrosis (PMF).	• Exposure to very high concentrations over a very short time period, sometimes as short as a few months. • The silicosis can develop within a few weeks to 5 years after the exposure. • Individuals are at severe risk of developing tuberculosis. • Individuals are constantly short of breath and lose a great deal of weight. • Rapidly progressive, incurable lung disease and is typically fatal.

Complicated/PMF

- Lung lesion >1 cm in diameter.
- Associated with more severe symptoms and respiratory impairment than simple silicosis disease.
- Disease may be associated to lung function decreasing and disabling.
- Advanced state can result in heart disease and may lead to death.
- More common in the accelerated silicosis form.
- At risk of developing tuberculosis.

Auto-immune Disease	Some case studies show that there is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as systemic sclerosis (thickening of the skin), lupus, rheumatoid arthritis and diseases affecting the kidneys.
Renal Disease	There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of the end stage kidney disease and kidney dysfunction
Teratogenicity	Not available.

SECTION 12.ECOLOGICAL INFORMATION

Ecotoxicity	Not available. This product has not tested.
Presistence and degrability	The term biodegradability, as such, is not applicable to inorganic compounds.
Bioaccumulation potential	Not available.
Mobility in soil	Not available. The product has not been tested.
Results of PBT and vPvB assessment	Not available. The product has not been tested.
Other adverse effects	No other information available at this moment.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Information

Waste must be disposed of in accordance with all applicable federal, state, provincial and local environmental control regulations. It is the user's responsibility to determine at the time of disposal if your waste product meets RCRA , Title 40 CFR 261 criteria for hazardous wastes

SECTION 14.TRANSPORT INFORMATION

Regulatory Information	UN Number	Proper Shipping Name	Classes	Packing Group	Label	Other Information
Canada - TDG Classification	NR	NR	NR	NR	NR	None
US - DOT Classification	NR	NR	NR	NR	NR	None
ICAO/IATA	NR	NR	NR	NR	NR	None
Marine pollutant	No component of this product is listed as a marine pollutant by the DOT (49 CFR 172.101, Appendix B.)					

SECTION 15.REGULATORY INFORMATION

U.S. Federal Regulations The product is controlled under the US Hazard Communication Rule (29 CFR 1910.1200).

TSCA All listed ingredients appear on the TSCA inventory and/or exempted

CERCLA No material is listed on the CERCLA chemical substance inventory.

OSHA The product and all listed ingredients are controlled under the OSHA HCS 2012 (29 CFR 1910.1200) and must be included in the employer's hazard communication program.

SARA Title III Section 311/312 Hazard Category: This product has been evaluated to meet the following hazard definitions under 40 CFR 370 Hazard Classes

An immediate acute health hazard	Yes	A delayed chronic health hazard	Yes	A fire Hazard	No
A corrosive hazard	No	A reactive hazard	No	A sudden release Hazard	No

SARA Section 313 Reporting: This product does not contain any chemical substance(s) listed under 40 CFR 372.65 and in concentrations that should required reporting under SARA 313.

State Right-to-Know

California Proposition 65 Silica, crystalline (airborne particles of respirable size) is an ingredient that can cause cancer according to the state of California.

New Jersey	Crystalline Silica, calcium carbonate, aluminum oxide. All these substances are on the New Jersey's Hazardous Substance Lists.	
Pennsylvania	Crystalline Silica, calcium carbonate, aluminum oxide. All these substances are on the Pennsylvania's Appendix A, Hazardous Substance Lists.	
Canadian Regulations	This product contains calcium carbonate and crystalline silica (Quartz) that are controlled as E, D2A under WHMIS. This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.	
DSL	All listed ingredients appear on the DSL (Domestic Substance List) list	
International Regulations		
Europe Inventory	(CLP)	All components are listed or exempted
Australian inventory	(AICS)	All components are listed or exempted
China inventory	(IECSC)	All components are listed or exempted
Japan inventory	(ENCS)	All components are listed or exempted
Japan inventory	(ISHL)	All components are listed or exempted
Korea inventory	(KECI)	Not determined.
New Zealand Inventory	(NZIoC)	All components are listed or exempted
Philippines inventory	(PICCS)	All components are listed or exempted

SECTION 16. OTHER INFORMATION

HMIS Rating

1	Health
0	Flammability
0	Reactivity
E	Protective Equipment

NFPA Rating

Glossary Terms

ACGIH	American Conference of Governmental Industrial Hygienists
CSA	Chemical Abstracts System Number
CFR	Code of Federal Regulation
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LC50	Concentration L50 (the concentration in air of a chemical which kills 50% of a experimental animal population)
LD50	Lethal Dose 50 (the administered dose of a chemical which kills 50% of a experimental animals population)
LEL	Lower Explosion Limit
mg/kg	Milligram per kilogram
mg/m^3	Milligram per cubic meter
MSHA	Mining Safety and Health Administration
NIOSH	National Institute of Occupational Safety and Health
NFPA	National Fire Protection Association
NR	Not Regulated
NTP	National Toxicology Program
OECD	Organization for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PNOR	Particles Not Otherwise Regulated
PNOS	Particles Not Otherwise Specified
PPM	Parts per million
RCRA	Resource Conservation and Recovery Act

STEL	Short –Term Exposure Limit (United States)
STEV	Short-Term Exposure Value (Ontario)
TWA	Time Weighted Average (United States - ACGIH)
TWAEV	Time Weighted Average Value (Ontario)
VEMP	Valeur d'exposition moyenne pondérée (Québec) = TWAEV = TWA
VECD	Valeur d'exposition de courte durée (Québec) = STEV = STEL
WHISM	Workplace Hazardous Materials Information System

Other Special Considerations This 16 heading format SDS complies or exceeds the Canadian WHMIS criteria, the GHS and the OSHA hazard communication standard 29 CFR 1910.1200. (Hazcom 2012).

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Notice to Reader

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