



## COAL CREEK STATION FLY ASH

### Section 1: Chemical Product and Company Identification

**Date Prepared:** 3/15/2006  
**Product Name:** Lignite Fly Ash  
**Trade Name and Synonyms:** Fly Ash, Coal Fly Ash, Class F Fly Ash, Coal Ash  
**Manufacturer:** Great River Energy, Coal Creek Station  
 2875 3<sup>rd</sup> St. SW  
 Underwood, North Dakota 58576  
**Information Phone Number:** 701-442-3211  
**Emergency Phone Number:** 701-442-3211

### Section 2: Composition/Information on Ingredients

Ingredient	CAS Number	Percent (By Weight)	OSHA PEL <sup>(1)</sup>	ACGIH TLV <sup>(1)</sup>
Crystalline Silica Total	14808-60-7	<5%	10/Silica % +2	
Respirable		(2)	10/Silica % +2	
Calcium Oxide	1305-78-8	.4 – 3.5%	5	2
Aluminosilicate Glass	(3)	60-85%	Not Listed	Not Listed
Iron Mineral Dusts	(4)	3-7%	10	5

(1) Airborne exposure limits in mg/m<sup>3</sup>

(2) Presence of respirable crystalline silica has not been established

(3) Contains, Aluminum, Silicon, Iron, Calcium, Magnesium and Titanium

(4) Iron minerals may include magnesium, hematite, and other iron oxides

### Section 3: Hazards Identification

#### POTENTIAL HEALTH EFFECTS

Fly ash is a mixture of chemical compounds. Analysis of the ash indicates that the component in the ash that controls toxicity is the quartz content. The relationship of quartz content to other chemicals and their respective exposure limit is such that, if exposure is maintained below the exposure limit for quartz, other hazardous materials will be well below their respective limit.

**Primary Routes of Entry:** Inhalation, skin and eye contact  
**Target Organs:** Respiratory system, lungs, skin, and eyes

**Carcinogen Listed in:**

NTP: Yes (Crystalline Silica)\*  
IARC Monograph: Yes (Crystalline Silica)\* Group 1  
OSHA: No

**Acute:** Fly Ash may cause irritation to the respiratory tract (Coughing, wheezing, and shortness of breath), eyes (irritation) or the skin (rash, dermatitis, dryness) . Alkaline material; irritation may be aggravated by the addition of moisture (sweat).

**Chronic:** Prolonged inhalation exposure may cause impaired pulmonary function and chronic irritation of the nasal passage. There is a possibility of dermatitis developing upon repeated or prolonged contact.

**Medical Conditions Generally Aggravated by Exposure:** May aggravate existing pulmonary conditions if high dust situation is created. Tobacco smoking and high Silica dust exposure exhibit a synergistic effect for lung cancer.

*\*Coal fly ash is not a listed carcinogen. Respirable crystalline silica from occupational sources is listed as a carcinogen to humans (Group 1) by IARC. NTP lists silica, crystalline (respirable) as a compound that may reasonable be anticipated to be a carcinogen. Presence of crystalline silica in respirable dust has not been established in this source.*

**Section 4: First Aid Measures**

**Eye Contact:** Immediately flush with water for at least 15 minutes including under lids to remove all particles. Seek medical attention for abrasions.  
**Skin Contact:** Wash with lukewarm water and a mild skin detergent or pH neutral soap for 15 minutes.  
**Inhalation:** Remove to fresh air; seek medical attention if respiratory symptoms (coughing, chest tightness, shortness or breath) persist.  
**Ingestion:** Unlikely to occur. Rinse mouth out with water. Do not induce vomiting. Obtain medical attention immediately.

**Section 5: Fire and Explosion Hazard Data**

Auto Ignition Temperature: NA  
Lower Explosive Limit: NA  
Upper Explosive Limit: NA  
Flash Point: NA  
Flammable Limits in Air (% by Volume): Not Flammable  
Special Fire Fighting Procedures: No special procedures required

Unusual Fire and Explosion Hazards: None. This material is considered non-flammable and non-combustible. Use fire extinguishing agent suitable for surrounding media.

**Section 6: Accidental Release Measures**

Steps to be taken in case material is released or spilled: Use dry cleanup methods that do not disperse the dust into the air. Avoid inhalation. Wetting with water mist will reduce airborne dust. Provide ventilation as appropriate. Use personal protection; respiratory, skin and eyes. Chemical neutralization is not required.

**Section 7: Handling & Storage**

**General:** Use dust tight containers and keep containers closed when not in use.

Keep bulk and bagged ash dry until used. Stack bagged material in a secure manner to prevent falling. Bagged ash is heavy and poses risks such as sprains and strains to the back, arms, shoulders and legs during lifting and mixing. Handle with care and use appropriate control measures.

**Engulfment hazard.:** To prevent burial or suffocation, do not enter a confined space such as a silo, bin, bulk truck or other storage container or vessel that stores or contains ash. Ash can build-up or adhere to the walls of a confined space. The ash can release collapse or fall unexpectedly.

**Grounding:** 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 works.

**Good Housekeeping:** Avoid actions that cause the ash to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust.

**Storage Temperature:** No limitations

**Storage Pressure:** No limitations

**Section 8: Exposure controls and Personal Protection**

**Engineering Controls:** Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation or personnel enclosure.

Keep dust below PEL levels. Use general and local exhaust ventilation and dust collection systems to keep dust levels within acceptable limits.

**Personal Protective Equipment (PPE):**

**Respiratory Protection:** Respirators are not needed for incidental exposure. During ash truck loading/unloading and other dusty conditions, personnel should wear NIOSH approved high efficiency filter masks. If airborne dust exposure approaches the PEL or TLV, use a half-mask or full-face air purifying respirator equipped with NIOSH or MSHA-approved high efficiency filters. Exposure to fly ash dust in confined spaces may require the use of Supplied Air Respirator or Self Contained Breathing Apparatus (SCBA).

**Hands/Skin Protection:** Work gloves (leather or cloth) or chemical resistant gloves may be needed to reduce skin irritation when workers handle fly ash.

**Eye Protection:** Safety glasses are required for any exposure. Non-ventilated goggles are recommended in dusty conditions. Use a face shield as necessary.

**Protective Clothing:** Protective clothing such as full body coveralls or a two-piece suit with boots may be necessary under heavy dusting conditions. Remove clothing and protective equipment that becomes saturated with wet ash and immediately wash exposed areas.

<b>Section 9: Physical/ Chemical Characteristics</b>
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Boiling Point: NA	Specific Gravity (H <sub>2</sub> O = 1): 2.5 – 2.6
Vapor Pressure: NA	Melting Point: >2000°F
Vapor Density: NA	Evaporation Rate: NA
pH in Water: 10.0 – 12.0	Water Reactive: Not Reactive
Appearance: Fine buff colored powder	Odor: None
Solubility in Water: Slightly soluble (0.1 – 3%)	

<b>Section 10: Stability and Reactivity</b>
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**Stability:** Considered to be stable. Mixing with water may produce a slight temperature increase.

**Hazardous Decomposition Products:** Decomposition products are unknown and not suspected.

**Hazardous Polymerization:** Hazardous polymerization not known to occur.

**Reactivity:** Material is considered inert. Avoid contact with strong acids, reducing agents and oxidizers.

**Conditions to Avoid:** None identified

### Section 11: Disposal considerations

**Waste Disposal:** Lignite combustion ash is exempted from hazardous waste classification by EPA regulations. Check with applicable state and local regulations.

### Section 12: Transport Information

This material is not classified as a Hazardous Material under US DOT or Canadian TDG regulations.

### Section 13: Regulations

**OSHA/MSHA Hazard:** This product is considered by OSHA/MSHA to be a hazardous substance and should be included in the employer's hazard communication program.

**CERCLA/Superfund:** This product is not listed as a CERCLA hazardous substance.

**SARA Title III:** This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard.

**SARA Section 313:** This material as shipped is not subject to SARA 313 regulations

**RCRA:** This material is not a RCRA hazardous waste

**Placard Requirement:** None

**TSCA:** Reporting is required under the Inventory Update Rule:

**California Proposition 65:** Crystalline silica (respirable) is a known carcinogen

**WHMIS/DSL:** Products containing crystalline silica are classified as D2A, E and are subject to WHMIS requirements

### Section 14: Other Information

The information provided in this Material Safety Data Sheet has been obtained from sources believed to be reliable. Great River Energy believes the information contained herein is accurate; however, Great River Energy provides no guarantees either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. Any party using the product should review all such laws, rules, or regulations prior to use, including but not limited to US and Canadian rules and regulations.