

# SAFETY DATA SHEET

(According to SANS 10234:2008 & SANS 11014:2010)



## Fly Ash

Generation Date: 19/10/2018

Revision number: 0

Revision Date: Not Applicable

### SECTION 1: IDENTIFICATION OF THE WASTE STREAM AND OF THE WASTE PRODUCER

#### PRODUCT IDENTIFIER

**Product Code** Not Applicable  
**Product Name** Fly Ash

#### RELEVANT IDENTIFIED USES OF THE MIXTURE AND USES ADVISED AGAINST

Not established

#### DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

**Generator:** Sappi Southern Africa Ltd  
Ngodwana Mill  
M4 Highway, Ngodwana  
1209

**Emergency contact:** Susan Slabbert  
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### SECTION 2: HAZARDS IDENTIFICATION

#### CLASSIFICATION OF THE MIXTURE

##### Hazard Classification According to SANS 10234:2008 (GHS)

Skin Corrosion, Category 1

Eye Damage, Category 1

Carcinogenicity, Category 2

Specific Target Organ Toxicity - Repeated Exposure, Category 1

##### Hazard Classification According to SANS 10228:2010

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##### The most important adverse effects

May cause severe skin burns and eye

#### LABEL ELEMENTS

##### Hazard Pictograms:



##### Signal Word:

Danger

##### Hazard Statements:

H314 Causes severe skin burns and eye damage  
H318 Causes severe eye damage  
H351 Suspected of causing cancer  
H372 Causes damage to organs through prolonged or repeated exposure

##### Precautionary Statements:

P201 Obtain special instructions before use  
P202 Do not handle until all safety precautions have been read and understood  
P260 Do not breathe dust/fumes/gas/mist/vapours/spray  
P264 Wash exposed skin thoroughly after handling  
P270 Do not eat, drink or smoke when using this product

P280	Wear protective gloves /protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P301+P330+P331	IF SWALLOWED : Rinse mouth. Do not induce vomiting.
P303+P361	IF ON SKIN (Or hair): Immediately remove/take off all contaminated clothing. Immediately rinse skin it water/shower.
P308+P313	If exposed or concerned: Call a POISON CENTRE or doctor/physician
P314	Get medical advice/attention if you feel unwell
P353	Rinse skin with water/shower
P363	Wash contaminated clothing before reuse
P304+P340	IF INHALED: Remove to fresh air and keep at rest in position comfortable for breathing
P310	Immediately call a POSION CENTRE or doctor/physician
P321	Specific treatment (See label)
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405	Store locked up
P501	Dispose of contents/container to an appropriate waste disposal facility.

**Other hazards associated with individual ingredients not resulting in classification of the stream towards any GHS prescribed endpoints:**

None identified.

**SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS PRESENT IN MIXTURE**

**Hazardous Ingredients / Components (Potential)**

Ingredient Name (IUPAC)	CAS No:	Conc % by weight	Classification
Titanium Dioxide	13463-67-7	1,13%	Skin Irritation 3, Carcinogenicity 2
Aluminium Oxide	1344-28-1	22,51%	STOT SE 3, STOT RE 1
Iron (III) Oxide	1309-37-1	4,67%	Skin Irritation 2, Eye damage 1, STOT SE 3, STOT RE 1
Magnesium Oxide	1309-48-4	1,24%	Substances that on contact with water emit flammable gases 2, Skin irritation 2 & Eye Irritation 2A
Calcium Oxide	1305-78-8	4,16%	Skin Irritation 2, Eye damage1 & STOT SE 3
Potassium Oxide	12136-45-7	0,97%	Skin Corrosion 1
Phosphorus Pentoxide	1314-56-3	0,28%	Skin Corrosion1 , Eye Damage 1
Sulphur Trioxide	7446/11/09	0,17%	Skin Corrosion 1, Specific Target Organ Toxicity – Single Exposure, Category 3

**SECTION 4: FIRST AID MEASURES**

**DESCRIPTION OF FIRST AID MEASURES**

<b>General First Aid Measures:</b>	Never give anything by mouth to an unconscious person. Emergency responders should wear appropriate protective equipment. If exposed or concerned: Get medical advice/attention.
<b>Following inhalation:</b>	Move to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if cough or other symptoms appear.
<b>Following skin contact:</b>	Remove contaminated clothing and wash all exposed skin with mild soap and water, followed by warm water rinse. Seek medical attention if irritation develops or persists. Thoroughly clean contaminated clothing before re-use or safely dispose.
<b>Following eye contact:</b>	Wash with copious amounts of water for at least 15 minutes. Seek immediate medical attention.
<b>Following ingestion:</b>	If victim is conscious and alert, give milk or water to drink. DO NOT induce vomiting. Seek medical attention.

**MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED**

<b>Symptoms/injuries following inhalation:</b>	The ash may be destructive to the tissue of of the mucous membranes and upper respiratory tract because of the Potassium oxide component. Sore throat, shortness of breath and laboured breathing may occur
<b>Symptoms/injuries following skin contact:</b>	May cause skin burns
<b>Symptoms/injuries following eye contact:</b>	May cause severe eye damage or burns
<b>Symptoms/injuries following ingestion:</b>	Abdominal pain and vomiting

#### **INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED**

Physician to treat symptomatically.

#### **SECTION 5: FIRE FIGHTING MEASURES**

##### **EXTINGUISHING MEDIA**

**Suitable extinguishing media :** The incinerator ash stream is non-combustible. Use carbon dioxide, foam, dry chemical or water spray to extinguish surrounding fire

##### **SPECIAL HAZARDS ARISING FROM THE STREAM**

**Fire Hazard:** Metal oxide fumes expected to be released under fire conditions

**Reactivity:** Strong acids and strong oxidising agents

##### **SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS**

Fire fighting crew to be equipped with full-face, self-contained breathing apparatus, rubber gloves, chemical resistant suit and boots. Thoroughly decontaminate all equipment following the conclusion of fire fighting activities.

#### **SECTION 6: ACCIDENTAL RELEASE MEASURES - ALSO SEE SECTION 5, 8 & 13**

##### **PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

**General measures:** Uncontrolled release should be responded to by trained personnel using pre-planned procedures. Keep unnecessary personnel from entering area. For additional information refer Sections 7 & 8.

**For non-emergency personnel:** Evacuate unnecessary personnel.

**For emergency responders:** Equip clean-up crew with the proper protective equipment, i.e. full-face, self-contained breathing apparatus, rubber gloves, chemical resistant suits and boots.

##### **ENVIRONMENTAL PRECAUTIONS**

Prevent entry to sewers and public waters. Notify the relevant authorities if the stream enters sewers or public waters.

Avoid release to the environment.

##### **METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP**

**For containment:** Cordon affected area. Place spilled waste into a labelled container and provide safe disposal. Avoid creating fine dusts. Avoid moisture.

##### **REFERENCE TO OTHER SECTIONS**

See Section 8: Exposure controls and personal protection

#### **SECTION 7: HANDLING AND STORAGE**

##### **PRECAUTIONS FOR SAFE HANDLING**

**Precautions for safe handling:** As with all chemical waste, avoid getting the waste material ON YOU or IN YOU. Do not handle until all safety precautions have been read and understood. Obtain special instructions before handling. Wear suitable personal protective equipment. Report all waste releases promptly. Containers of waste should be properly labelled. Wash hands thoroughly before eating or smoking.

##### **CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES**

**Technical measures:** Follow practice indicated in Section 6. Always handle material in areas where adequate ventilation is provided. Decontaminate equipment before beginning any maintenance procedure.

**Storage conditions:** Keep stored containers of the stream away from sources of intense heat. Store away from incompatible materials. Material should be stored in a demarcated or banded area.

**Incompatible materials:** Not Established

**Prohibition on mixed storage:** Do not store with incompatible materials

**Storage area:** Store in a cool, dry, well-ventilated area away from incompatible materials and sources of ignition.

**Special rules on packaging:** Inspect the containerised stream before storage to ensure containers are properly labelled and leak-proof.

##### **SPECIFIC END USE(S)**

No additional information available.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****CONTROL PARAMETERS**

Ingredient Name (IUPAC)	CAS No:	OSHA PEL (mg/m3)
Titanium Dioxide	13463-67-7	15
Aluminium Oxide	1344-28-1	5
Iron (III) Oxide	1309-37-1	10
Magnesium Oxide	1309-48-4	Not Established
Calcium Oxide	1305-78-8	5
Potassium Oxide	12136-45-7	Not Established
Phosphorus Pentoxide	1314-56-3	Not Established
Sulphur Trioxide	2025949	Not Established

**EXPOSURE CONTROLS****Appropriate engineering controls**

Handle the material in a well ventilated area or ensure other engineering controls are in place to control exposure. Use good housekeeping and sanitation practices. Do not use tobacco or consume food in stream handling or storage areas. Wash hands thoroughly before eating or smoking. Clothing worn in the stream processing and storage areas should be restricted to the workplace and stored in special lockers because of potential exposure.

**Individual protection measures such as personal protective equipment**

**Respiratory protection:** NIOSH approved respirators or self-contained breathing apparatus should be worn by personnel handling or processing the waste stream.

**Hand protection:** Avoid direct contact. Handle stream with impermeable gloves. Gloves to be inspected prior use. Use proper glove removal technique, without touching the glove's outer surface, to avoid skin contact with the material. Dispose contaminated gloves after use in accordance with applicable laws. Wash and dry hands.

**Eye protection:** Avoid any form of direct contact. Do not touch eyes with dirty hands or gloves. Use NIOSH approved safety glasses or face shield.

**Skin and body protection:** Use chemical resistant overalls and safety footwear.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the waste material.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Particulate

**Colour:** Grey to black

**Odour:** Odourless

**Odour threshold:** Not applicable

**pH of stream:** 12,8

**Melting point for stream components:**

Titanium Dioxide 1843°C

Aluminium Oxide 2072°C

Iron (III) Oxide 1566°C

Magnesium Oxide 2802°C

Calcium Oxide 2572°C

Potassium Oxide 740

Phosphorus Pentoxide 340°C

Sulphur Trioxide 16,8°C

**Boiling point for stream components:**

Titanium Dioxide 2972°C

Aluminium Oxide 2977°C

Iron (III) Oxide 1987°C

Magnesium Oxide Not established

Calcium Oxide 2850°C

Potassium Oxide Not established

Phosphorus Pentoxide Not established

Sulphur Trioxide 14,7°C

**Flash point of stream :** Not established

**Evaporation rate of stream components (Butyl Acetate = 1):** Not established

<b>Flammable Limits in air</b>	Not established
<b>Auto ignition temperature:</b>	Not established
<b>Vapour pressure:</b>	Not established
<b>Vapour density:</b>	Not established
<b>Relative density :</b>	Not established
<b>Water solubility of stream components:</b>	Insoluble
<b>n-Octanol/Water partition coefficient per component:</b>	Not Established
<b>Component Decomposition temperature:</b>	Not established

## SECTION 10: STABILITY AND REACTIVITY

### CHEMICAL STABILITY

Stable at room temperature in closed containers under normal storage and handling conditions.

### POSSIBILITY OF HAZARDOUS REACTIONS

See Section 7: Incompatible Materials.

### CONDITIONS TO AVOID

None known

### INCOMPATIBLE MATERIALS

Avoid contact with strong oxidizing materials and strong acids

### HAZARDOUS DECOMPOSITION PRODUCTS

Metal oxides and carbon oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### INFORMATION ON THE TOXICOLOGICAL EFFECTS OF THE STREAM COMPONENTS:

#### **Titanium Dioxide**

Skin Corrosion / Skin Irritation, Category 3  
Carcinogenicity, Category 2

#### **Aluminium Oxide**

Specific Target Organ Toxicity - Single Exposure, Category 3 (Respiratory Tract Irritation)  
Specific Target Organ Toxicity - Repeat Exposure, Category 1 (Respiratory System)

#### **Iron (III) Oxide**

Skin Corrosion / Skin Irritation, Category 2  
Serious Eye Damage / Eye Irritation, Category 1  
Specific Target Organ Toxicity - Single Exposure, Category 3 (Respiratory Tract Irritation)  
Specific Target Organ Toxicity - Repeat Exposure, Category 1 (Respiratory System)

#### **Magnesium Oxide**

Serious Eye Damage/ Eye Irritation , Category 2A

#### **Calcium Oxide**

Skin Corrosion / Skin Irritation, Category 2  
Serious Eye Damage / Eye Irritation, Category 1  
Specific Target Organ Toxicity - Single Exposure, Category 3 (Respiratory Tract Irritation)

#### **Potassium Oxide**

Skin Corrosion / Skin Irritation, Category 1  
Serious Eye Damage / Eye Irritation, Category 1

#### **Phosphorus Pentoxide**

Skin Corrosion / Skin Irritation, Category 1

#### **Sulphur Trioxide**

Skin Corrosion / Skin Irritation, Category 1  
Specific Target Organ Toxicity - Single Exposure, Category 3 (Respiratory Tract Irritation)

**INFORMATION ON THE TOXICOLOGICAL EFFECTS OF THE STREAM MIXTURE:**

Skin Corrosion, Category 1  
Eye Damage, Category 1  
Carcinogenicity, Category 2  
Specific Target Organ Toxicity - Repeated Exposure, Category 1

**INFORMATION ON COMPONENT TOXICOLOGICAL EFFECTS**

Ingredient Name (IUPAC)	CAS No:	LC50/LD50
Titanium Dioxide	13463-67-7	oral = >10000mg/kg
Aluminium Oxide	1344-28-1	oral = >2000mg/kg
Iron (III) Oxide	1309-37-1	5500mg/kg
Magnesium Oxide	1309-48-4	Not Established
Calcium Oxide	1305-78-8	Not Established
Potassium Oxide	12136-45-7	Not Established
Phosphorus Pentoxide	1314-56-3	Inhalation = 271mg/m <sup>3</sup> (1hr; mouse)
Sulphur Trioxide	7446-11-9	Inhalation = 375mg/m <sup>3</sup> (4hr; Rat)

**Skin Corrosion / Skin Irritation**

Skin corrosion, Category 1

**Serious Eye Damage / Eye Irritation**

Eye Damage, Category 1

**Respiratory Sensitisation / Skin Sensitisation**

The stream is not classifiable to the Respiratory Sensitisation / Skin Irritation endpoint.

**Germ Cell Mutagenicity**

The stream cannot be classified to the Germ Cell Mutagenicity endpoint.

**Carcinogenicity**

Carcinogenicity, Category 2

**Reproductive Toxicity**

The stream is not classified to the Reproductive Toxicity endpoint.

**Specific Target Organ Toxicity, Single Exposure**

The stream is not classifiable to the Specific Target Organ Toxicity, Single Exposure endpoint.

**Specific Target Organ Toxicity, Repeat Exposure**

STOT RE 1

**Aspiration Hazard**

The stream is not classifiable to the Aspiration Hazard endpoint.

**Symptoms / Injuries following short-term or chronic exposure**

Refer Section 4 (First Aid Measures)

**SECTION 12: ECOLOGICAL INFORMATION****INFORMATION ON THE AQUATIC ENVIRONMENTAL HAZARDS OF THE INDIVIDUAL STREAM COMPONENTS:**

None of the components are classified to any aquatic hazards

## **ECOTOXICITY**

Substance Name (IUPAC)	CAS-No.	LC50
Titanium Dioxide	13463-67-7	>1000mg/l
Aluminium Oxide	1344-28-1	Not Established
Iron (III) Oxide	1309-37-1	>1000mg/l
Magnesium Oxide	1309-48-4	Not Established
Calcium Oxide	1305-78-8	>1000mg/l
Potassium Oxide	12136-45-7	>1000mg/l
Phosphorus Pentoxide	1314-56-3	>1000mg/l
Sulphur Trioxide	7446-11-9	Not Established

### **PERSISTENCE AND DEGRADABILITY OF INDIVIDUAL STREAM COMPONENTS:**

Metal oxides are not known for being hazardous to water

### **BIOACCUMULATIVE POTENTIAL OF THE INDIVIDUAL STREAM COMPONENTS**

Not Established

### **MOBILITY IN SOIL**

Inorganics tend to adsorb strongly onto soils, clays and organic materials

### **AQUATIC ENVIRONMENTAL EFFECTS OF THE WASTE STREAM:**

The waste stream cannot be classified to the acute or chronic aquatic environmental hazard endpoints

## **SECTION 13: DISPOSAL CONSIDERATIONS**

### **WASTE TREATMENT & DISPOSAL METHODS:**

The waste stream, including any potential containers, must be disposed as hazardous waste in accordance with local and national environmental requirements. Do not wash into sewers and waterways. Transportation and management must be facilitated by an appropriately licenced waste management company.

## **SECTION 14: TRANSPORT INFORMATION**

Not regulated

## **SECTION 15: REGULATORY INFORMATION**

**Handling, storage and disposal:** National Environmental Management Waste Act, Act No. 59 of 2008.  
South African National Standards (SANS) 10234: 2008, Globally Harmonised System of Classification and Labelling of Chemicals.  
Department of Water Affairs and Forestry, Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, Second Edition, 1998.  
GNR 634, Waste Classification and Management Regulations.  
GNR 635, National Norms and Standards for the Assessment of Waste for Landfill Disposal.  
GNR 636, National Norms and Standards for Disposal of Waste to Landfill.

**Transport:** National Road Traffic Regulations (2000) as promulgated under the National Road Traffic Act, No. 83 of 1996.  
South African National Standards (SANS) 10228:2010, The Identification and Classification of Dangerous Goods for Transport.

**Occupational:** Occupational Health and Safety Act (1993). Hazardous Chemical Substances Regulations, 1995.

## SECTION 16: OTHER INFORMATION

**Training advice:** Provide adequate information, instruction and training for operators.

**A key or legend to abbreviations and acronyms used in the safety data sheet:**

SANS	South African National Standards
GHS	Globally Harmonised System
OSHA PEL	Occupational Safety and Health Organisation Permissible Exposure Limit
NIOSH REL	National Institute for Occupational Safety and Health Recommended Exposure Limit
ACGIH TLV	American Conference of Governmental Industrial Hygienists Threshold Limit Value
TWA	Time Weighted Average

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**Notice to Reader:** All reasonable efforts were exercised in the compilation of this SDS in accordance with the dictates of SANS 10234 & SANS 11014. The SDS provides information regarding the health, safety and environmental hazards, at the date of issue, to facilitate the safe generation, receipt, handling, transport and disposal of the stream. It remains the obligation of the generator, receiver, handler, transporter and manager of the stream, prior processing, to review the SDS in the context within which the waste shall be generated, received, handled, transported, treated and disposed. The generator, handler, transporter and manager must ensure the necessary mitigating measures are in place as regards health and safety. This document does not serve as a surrogate for any relevant risk assessments to be conducted per exposure scenario. It further remains the responsibility of the generator, receiver, handler, transporter and manager to communicate such information to all pertinent parties that may be involved in the generation, receipt, handling, transport and management of the waste stream.

**Date of issue:** 19-Oct-18

End of SDS