



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

RISK MANAGEMENT PLAN IN TERMS OF REGULATION 10 OF WASTE EXCLUSION REGULATIONS

APPLICANT	. GLENCORE OPERATIONS SOUTH AFRICA (PTY) LTD's - COAL DIVISION: TWEEFONTEIN		
SOURCE (S) OF WASTE	Mine Overburden.		
WASTE TO BE BENEFICIATED			
BENEFICIAL USE/S	Backfilling into open pit created by opencast mining		
MSDS ATTACHED IF HAZARDOUS	YES ✓	NO	
WASTE GENERATING FACILITY	Glencore Coal South Africa PTY LTD: Tweefontein Complex		
PHYSICAL ADDRESS	Farm Tweefontein 13 IS, Witbank District		
GPS CO-ORDINATES OF WASTE GENERATING	26° 0'51.84" Latitude; 29° 7'56.39" Longitude		

FACILITY (EG. 60° 29' 30" Latitude; 34° 20' 15" Longitude)	Centre: 26° 1'52.18" Latitude; 29° 8'51.29" Longitude Centre: 26° 3'11.56" Latitude; 29° 8'58.38" Longitude		
POSTAL ADDRESS	Private Bag X16, Leraatsfontein		
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RISK MANAGEMENT PLAN – TWEEFONTEIN COMPLEX MINE OVERBURDEN

Activity	Risk Description	Action(s) to minimise/ manage the risk
1. Loading of material onto trucks (on the mine)	Uncontrolled dispersion of dust	<p>Preventative mitigation measure</p> <ul style="list-style-type: none"> • Dust management during loading of material through wetting (depending on particle size analysis). • Dependant on particle size, stop loading during extreme wind conditions. <p>Corrective mitigation measure</p> <ul style="list-style-type: none"> • Wearing of relevant PPE (dust mask and eye protection) during loading where required.
2. Transportation of material (on the mine)	Uncontrolled dispersion of dust	<p>Preventative mitigation measure</p> <ul style="list-style-type: none"> • Dust management during transportation will include ensuring vehicles follow an approved route that will limit the exposure of dust in nearby communities. • Side tippers with tarpaulin devices will be recommended for the transportation of the material locally on the mine, where the community can be exposed but dependant on the particle size. <p>Corrective mitigation measure</p> <ul style="list-style-type: none"> • None
3. Off-loading of material (on and off the mine)	Uncontrolled dispersion of dust	<p>Preventative mitigation measure</p> <ul style="list-style-type: none"> • Dust management during off-loading of material through wetting (depending on particle size analysis). • Stop off-loading of material during extreme wind conditions. <p>Corrective mitigation measure</p> <ul style="list-style-type: none"> • Wearing of relevant PPE (dust mask and eye protection) during off-loading where required.
4. Storage of material (on the mine)	Uncontrolled dispersion of dust Seepage into water resource/s	<p>Preventative mitigation measure</p> <ul style="list-style-type: none"> • Confirmatory monitoring of AMD potential from overburden disposed. • Incorporate the geochemistry results into a geochemical model to evaluate long-term geochemical behaviour.

Activity	Risk Description	Action(s) to minimise/ manage the risk
		<ul style="list-style-type: none"> • Allow for effective clean and affected water separation. • Material will be placed by means of soft placement and not tipped from a height. • Where possible, use existing infrastructure to backfill overburden material into the open pits. • All activities and supporting infrastructure / equipment in or adjacent to watercourses shall be minimised where appropriate. • Maintenance of equipment should be undertaken regularly, and adherence to operational procedures. • Ensure water management facilities are operating adequately until such time that these get rehabilitated to prevent silt loading of surrounding areas or water courses. • All activities and supporting infrastructure / equipment in or adjacent to watercourses shall be minimised where appropriate. • Capture seepage from the dump and reticulate to a closed affected water circuit or treat and dispose. • Implement scavenger pumps (if relevant) to contain groundwater pollution if undesirable water quality is detected. • Do not discharge water that does not comply with regulatory release standards. • Vegetate long-term stockpiles. • Seed all long-term stockpiles. Seeding must be completed as soon as practically possible in the wet season. <p>Corrective mitigation measure</p> <ul style="list-style-type: none"> • The use of Safety Data Sheet (SDS) with hazard classification which is provided to all users. • Clean-up plan to be implemented where material is carried away from storage area.
6. Rehabilitation (backfilling)	Decant into water resource/s	<p>Preventative mitigation measure</p> <ul style="list-style-type: none"> • Confirmatory monitoring of AMD potential from overburden disposed. • Place carbonaceous material in the bottom of the pit to enable fast saturation. • Incorporate the geochemistry results into a geochemical model to evaluate long-term geochemical behaviour. • Maintain water levels in backfilled pit to levels below decant level. • Monitor water levels and quality in backfilled pits. • Monitor area for erosion and pooling and rehabilitate if necessary.

Activity	Risk Description	Action(s) to minimise/ manage the risk
		<ul style="list-style-type: none"> • Replace soils to adequate depths over contoured areas and ameliorate as necessary and vegetate as soon as possible to limit long-term water and oxygen ingress. • Ensure soils are replaced to an adequate depth and ensure soil quality is adequate. <p>Corrective mitigation measure</p> <ul style="list-style-type: none"> • Digging of a cut-off trench up to the hard/fresh rock that drains to the PCD. • Water treatment of decant if quality is substandard. • Pump dirty water to a water treatment plant. • Implement acid management plan as needed or when required.

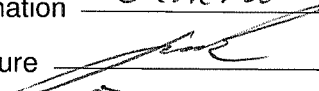
DECLARATION

x I, JM de Bruin hereby declare that I have read the completed a Risk Management form and hereby confirm that the information is to the best of my knowledge true and correct.

Furthermore, I declare that I am fully aware of my responsibilities in terms of the Waste Exclusion Regulations, and that failure to comply with these Regulations may constitute an offence in terms of the National Environmental Management: Waste Act, 2008(Act 59 of 2008).

Applicant (Full names) Johannes Matthys de Bruin

Designation General Manager

x Signature 

Date 15-01-2021 Place Tweefontein

FOR OFFICE USE ONLY

Date Received				
Decision Taken	Authorised	Not authorised (provide reason)		
Reference Number				

SAFETY DATA SHEET

Conforms to ISO 11014-1 and the South African
Occupational Health and Safety Act (86/1993)

December 2020

MINE OVERBURDEN

1. COMPANY INFORMATION

Name: GLENCORE OPERATIONS SOUTH AFRICA (PTY) LTD's - COAL DIVISION: TWEEFONTEIN
Address: Farm Tweefontein 13 IS
Witbank District
Registration number: 1997/017998/07
Tel Number: + 013 686 3305

2. HAZARDS IDENTIFICATION

Tweefontein overburden is composed of 65% quartz (SiO_2), 25.5% of the clay mineral kaolinite [$\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$], 6.6% the phyllosilicate mineral muscovite [$\text{KAl}_2(\text{AlSi}_3\text{O}_{10})(\text{F},\text{OH})_2$], 2.9% of the aluminosilicate mineral microcline (KAlSi_3O_8) and 0.1% of the iron carbonate mineral siderite (FeCO_3). The material contains a variety of trace metals and can be readily bio-available to biological organisms in the presence of acids. A likely acid generating capacity do exist for Tweefontein overburden. The Si is expected to be present in a size not to be harmful. Any respirable silica dust generated may cause health effects. Silicosis is normally associated with prolonged inhalation of crystalline silica dust.

The material is not considered hazardous during normal use and if precautionary measures are taken, and when recommended use instructions are followed. The following potential hazards should however be recognised:

Target Organs: May cause respiratory irritation upon exposure to high airborne concentrations. May cause eye irritation if material contacts eye.

Hazard statements:

May be harmful if swallowed (H303).

May be harmful if inhaled (H333).

Precautionary Statement:

Avoid inhaling dust.

Wear protective gloves/protective clothing/eye protection/face.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present.

Continue rinsing.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

The mine overburden is composed of the following elemental oxides in concentrations greater than 0.1%:

Constituent	Content (%)	CAS number
SiO ₂	56.1	7631-86-9
Al ₂ O ₃	14.5	1344-28-1
Fe ₂ O ₃	5.80	1309-37-1
K ₂ O	2.02	1309-48-4
TiO ₂	0.71	13463-67-7
MgO	0.517	1309-48-4
CaO	0.499	1305-78-8
Na ₂ O	0.158	1313-59-3
P	0.140	7723-14-0
MnO	0.068	1344-43-0

4. FIRST AID MEASURES

Eye: Flush eyes with plenty of water for a minimum of 15 minutes. Keep rotating the eyes to ensure complete flushing of all particles. Do not rub eyes. Seek medical attention promptly if irritation persists or any abrasions occur.

Skin: Not severely abrasive on skin but skin should be washed with cool water and mild soap or detergent if rash or irritation occurs.

Inhaled: No specific first aid measures are needed but remove affected person promptly to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside. Always use proper PPE.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry powder, carbon dioxide, foam or water spray.

Exposure Hazards: The product will not ignite easily.

6. ACCIDENTAL RELEASE MEASURES

Personal Precaution: Wear personal protective clothing with a respiratory mask, to prevent dust inhalation. Ensure adequate ventilation.

Emergency: Isolate the spill and prevent further leakage or spillage.

Environmental: Prevent entry of the spilled product into waterways, sewers or confined areas.

Clean up methods: Sweep up and shovel it into suitable containers for re-use, recovery or disposal. Avoid creating a dust cloud.

Other Information: See Section 13 for disposal Considerations.

7. HANDLING AND STORAGE

Handling: Handle in a well-ventilated area. Keep dust formation to a minimum. Always wear correct PPE.

Protective clothing: Chemical protective clothing should not be required under normal circumstances when using this material.

Storage: No special storage requirements but store where excessive wind cannot disperse dust particles.

8. ENGINEERING MEASURES

Occupational Exposure Limits (OEL):

There are no exposure limits available for the mine overburden, therefore the ingredients or a substance close to the ingredients will be used. Below is Exposure Limits for dust and silicon. The exposure limits for nuisance dust (particulates not otherwise regulated) are the most important and should be used. Dust to be suppressed while stored above surface.

Particulates not otherwise regulated – Total Dust

TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)

General Industry - TWA 15 mg/m³

Construction Industry – TWA 15 mg/m³

TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)

ACGIH Guideline: TWA 10 mg/m³ (Inhalable Particles)

Silicon [CAS No. 7440-21-3]

TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)

TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)

Personal protection during working application:

Respiratory: Suitable dust masks of same nature as for nuisance dust
(NB, recommendations/specifications to be informed by an
occupational health practitioner.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark Grey
Odour:	None
Odour Threshold:	Not applicable since there is no odour
pH:	5.16
Melting Point:	Not Available
Boiling Point:	Not available
Flash Point:	Not Applicable Inorganic Substance
Evaporation Rate:	Not available
Flammability:	Not Flammable
Explosion limits:	Not Explosive
Vapour Pressure:	Not Available
Vapour Density:	Not Applicable
Relative Density:	Not Available
Water Solubility:	Not available
Partition Coefficient:	Not Applicable, Inorganic Substance

10. STABILITY AND REACTIVITY

Chemical stability:

Stable under normal temperatures and pressures

Possibility of Hazardous Reactions:

Avoid reactions with acids such as hydrofluoric acid and nitric acid and bases.

Conditions to Avoid:

Avoid generating dust.

11. TOXICOLOGICAL INFORMATION

Acute Potential Effects:

Possible silicosis, fibrosis, cancer

May be harmful if swallowed

May be harmful if Inhaled

Chronic Potential Health Effects:

The substance may be toxic to lungs and upper respiratory tract. Repeated or prolonged inhalation or unprotected exposure to the substance can produce target organ damage.

Likely routes of exposure: Eye contact, skin contact, inhalation

Target Organs: Skin, Eyes, Respiratory System

Constituent / Ingredient Toxicity (LD50): Oral > 2000 mg/kg, ≤5 000 mg/kg;

Dermal >5 000 mg/kg

Constituent / Ingredient Toxicity (LC50): Inhalation >5 mg/l

12. ECOLOGICAL INFORMATION

Persistence and Degradability:

Most ingredients are of inorganic nature and do not biodegrade.

Ecotoxicity:

Daphnia: Possible

Fish: Possible

Aquatic Plants: Possible

Micro-algae: Possible

Bacteria: Possible

Mobility in water:

Relatively soluble in water under acidic conditions.

Mobility in soil:

Expected to be relatively immobile in soil.

Bioaccumulation:

May be significantly bioconcentrated at lower trophic levels.

13. DISPOSAL CONSIDERATIONS

The preferred methods of disposal are firstly recycling or re-using. Disposal should comply with the waste disposal legislation as well as any other municipal regulations. This product should never be disposed within watercourses.

14. TRANSPORT INFORMATION

Transport Hazard Class: None

Environmental hazard: Hazardous Waste, solid

Special Precaution for User: Not Hazardous for transportation. Avoid dust formation.

15. REGULATORY INFORMATION

No constituents contained in this product has been listed in the Hazardous Chemical Substances Regulations for the Occupational Exposure Limit.

National legislation:

Waste Classification and Management Regulations (GN R.634 of 23 August 2013)

SANS 10228:2010 The identification and classification of dangerous goods for transport (Edition 5)

Regulations Regarding the Planning and Management of Residue Stockpiles And Residue Deposits, NO. R. 632 (as amended 21 September 2018), National Environmental Management: Waste Act, 2008 (act no. 59 of 2008).

SANS 10234- A List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)

16. OTHER INFORMATION

Date of issue: 1st Issue; December 2020

Compiled by: Shangoni Management Services (Pty) Ltd

The data in this SDS relates only to the specific material designated herein and does not relate to use in combination with other materials and in any process. The author assumes no responsibility for any physical or chemical changes, which the Buyer/User may make to the material designated in this SDS.
