



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

RISK ASSESSMENT IN TERMS OF REGULATION 8 OF THE WASTE EXCLUSION REGULATIONS

APPLICANT	Sasol South Africa (Ltd)
WASTE STREAM OR PORTION OF A WASTE STREAM	Chlor-Alkali brine sludge/Filter cake
BENEFICIAL USE/S	Chlor-Alkali brine sludge/Filter cake may be beneficially utilised in the construction sectors. Its uses may include but are not limited to: (a) Brickmaking (b) Blockmaking
WASTE GENERATING FACILITY OR FACILITIES	
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	Bergius Road, Sasolburg, 1947
GPS CO-ORDINATES OF WASTE GENERATING FACILITY OR FACILITIES	Chlor-Alkali plant, Midlands site 26°49'20.42"S: 27°52'35.27"E 26°49'21.76"S: 27°52'23.7"E 26°49'32.74"S: 27°52'25.65"E 26°49'29.28"S: 27°52'36.62"E 26°49'27.57"S: 27°52'29.7"E (centre point)
CONTACT PERSON	
NAME	Albie Bloem (Sasolburg Operations (SO): Senior Manager Production, Chlor-Alkali)
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<p>* DETAILED DESCRIPTION OF WASTE GENERATING PROCESS</p>	<p><u>Current Sasolburg Operations (SO) process:</u> Solid salt is used for the preparation a raw brine. Calcium and magnesium impurities are removed from the raw brine by adding sodium and/or calcium compounds. The formed calcium carbonate and magnesium hydroxide flocs, are then removed in a clarifier-settler. The settled brine sludge is combined with calcium sulphate sludge and pumped to an automated press filter, where it is separated into a filtrate which is fed back to the effluent system, and a relatively dry but salt contaminated cake. This is collected in waste skips/tipper trucks for disposal to a hazardous waste site.</p>	
<p>PRODUCTION PROCESS FLOW CHART ATTACHED</p>	<p>YES X</p>	<p>NO</p>
<p>IDENTIFICATION OF HAZARDS</p>		
<p>WASTE CLASSIFICATION</p>	<p>NON-HAZARDOUS</p>	<p>GENERAL</p>
<p>IF WASTE IS HAZARDOUS LIST THE HAZARDS OF THE WASTE</p>	<p>X</p>	
<p>*A process flow chart must be attached to the process description</p>		

RISK ASSESSEMENT WITHOUT MITIGATION

Beneficial use of brine sludge/filter cake in the construction and agricultural sectors (Brickmaking; Block making)

Activity	Risk Description	Environmental receptors	Impact	Assessment of the risk			Significance
				Probability	Magnitude	Duration	
1. Loading of brine sludge/filter cake onto trucks	Loss of containment of brine sludge/filter cake	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Inherent: Definite: 5	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Site only: 1 Inherent: 20, low environmental significance
2. Transportation of brine sludge/filter cake	Loss of containment of brine sludge/filter cake	Air	<ul style="list-style-type: none"> Dust generation along transportation route Air pollution 	Inherent: Definite: 5	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Local: 2 Inherent: 25, low environmental significance
		Land	<ul style="list-style-type: none"> Load of brine sludge/filter cake deposited on land in the vicinity of the road Land pollution 	Inherent: Medium probability: 3	Inherent: Low: 4	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1 Inherent: 21, low environmental significance
		Water	<ul style="list-style-type: none"> Load of brine sludge/filter cake deposited in water body in the vicinity of the road Water pollution 	Inherent: Medium probability: 3	Inherent: Moderate: 6	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1 Inherent: 27, low environmental significance
3. Off-loading of brine sludge/filter cake	Loss of containment of brine sludge/filter cake	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Inherent: Definite: 5	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Site only: 1 Inherent: 20, low environmental significance
4. Storage of brine sludge/filter cake	Loss of containment of brine sludge/filter cake	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Inherent: Highly probable: 4	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Site only: 1 Inherent: 16, low environmental significance
		Land	<ul style="list-style-type: none"> Brine sludge/filter cake carried by run-off deposited on land in the vicinity of the brine sludge/filter cake storage area Land degradation 	Inherent: Medium probability: 3	Inherent: Minor: 2	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1 Inherent: 15, low environmental significance
		Water	<ul style="list-style-type: none"> Brine sludge/filter cake carried by run-off deposited 	Inherent: Low probability: 2	Inherent: Low: 4	Inherent: Residual: Local: 2	Inherent: Residual: Local: 2 Inherent: 2

	in storm water channels and water body in the vicinity of the brine sludge/filter cake storage area		in storm water channels and water body in the vicinity of the brine sludge/filter cake storage area		Short term (0 to 12 months): 2	16, low environmental significance
5. Handling of brine sludge/filter cake (i.e. screening, crushing, blending etc.)	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	<p>Inherent: Definite: 5</p> <p>Inherent: Minor: 2</p>	Inherent: Immediate: 1	Inherent: Site only: 1	Inherent: 20, low environmental significance
a. Brickmaking; b. Block making;	The point at which coal brine sludge/filter cake enters the production process of bricks and blocks to the actual products is outside the scope of this risk assessment. The incorporation of coal brine sludge/filter cake into these existing production processes is matured. The quality of the products from these processes is regulated by relevant standards.					
6. Disposal of brine sludge/filter cake and brine sludge/filter cake containing products	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Residual: Medium probability: 3	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1	Inherent: 15, low environmental significance
	Land	<ul style="list-style-type: none"> Load of brine sludge/filter cake disposed illegally on land Land degradation 	Inherent: Medium probability: 3	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1	Inherent: 21, low environmental significance
	Water	<ul style="list-style-type: none"> Illegally disposed brine sludge/filter cake reaching water body in the vicinity of the dumping area Water pollution 	Inherent: Medium probability: 3	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1	Inherent: 21, low environmental significance
7. Residual brine sludge/filter cake stockpiled after closure, decommissioning or change of ownership of user facility	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Inherent: Medium probability: 3	Inherent: Immediate: 1	Inherent: Site only: 1	Inherent: 12, low environmental significance
	Land	<ul style="list-style-type: none"> Brine sludge/filter cake carried by run-off deposited on land in the vicinity of the brine sludge/filter cake storage area Land degradation 	Inherent: Medium probability: 3	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1	Inherent: 21, low environmental significance
	Water	<ul style="list-style-type: none"> Brine sludge/filter cake carried by run-off deposited in storm water channels and water body in the vicinity of the brine sludge/filter cake storage area 	Inherent: Low probability: 2	Inherent: Short term (0 to 12 months): 2	Residual: Local: 2	Inherent: 16, low environmental significance

The following factors and criteria must be used to assess the impacts of the activities:

Criteria	
MAGNITUDE (Severity)	DURATION
10 - Very high	5 - Permanent (longer than 10 years)
8 - High	4 - Long-term (5 to 10 years)
6 - Moderate	3 - Medium-term (12 months to 5 years)
4 - Low	2 - Short-term (0 to 12 months)
2 - Minor	1 - Immediate
SCALE	PROBABILITY (Likelihood)
5 - International	5 - Definite
4 - National	4 - Highly probable
3 - Regional	3 - Medium probability
2 - Local	2 - Low probability
1 - Site only	1 - Improbable
0 - None	0 - None

Magnitude

Magnitude measures the size of the impact

Duration

Duration refers to the lifetime of the impact i.e. how long it will last

Scale

The scale refers to the extent of the impact.

Probability

The probability refers to the chance of impact to occur. The potential impact could be most likely to occur, unlikely, etc.

Assessment of Significance of impact

Significance rating of the potential impacts illustrates the importance of the impact itself. The size of area affected by pollution may be extremely high but the significance of this effect is dependent on the concentration or level of pollution in that area. In order to determine the significance of impact, the following method was used:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

The values of SP are then ranged as follows:

Rating	Description
SP >60	Indicates high environmental significance An impact which could influence the decision about whether or not to proceed with the activities regardless of any possible mitigation.
SP 30 – 60	Indicates moderate environmental significance An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP <30	Indicates low environmental significance Impacts with little real effect and which will not have an influence on or require modification of the activities.
+	Positive Impact An impact that is likely to result in positive consequences/effects

I, Albie Bloem hereby declare that I have read the completed the Risk Assessment form and hereby confirm that the information is to the best of my knowledge true and correct.

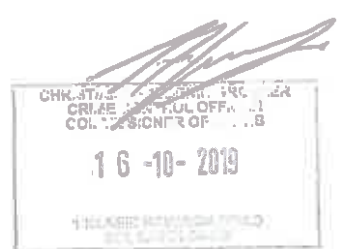
Furthermore, I declare that I am fully aware of my responsibilities in terms of the Waste Exclusion Regulations, and that failure to comply with these Regulations may constitute an offence in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008).

Applicant (Full names) ALBERT BLOEM

Designation Sasolburg Operations (SO): Senior Manager Production, Chlor-Alkali

Signature 

Date 16/10/2019 Place SASOLBURG



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Date Received				
Decision Taken	Authorised		Not Authorised(provide reasons)	
Reference Number				