



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	Coarse soot
BENEFICIAL USE/S	Sasol coarse soot may be beneficially utilised in the carbon and Alternative Fuels & Resources (AFR) sectors. Its uses may include but are not limited to: (a) Replacement material substitute for specialised carbon products (b) AFR
WASTE GENERATING FACILITY OR FACILITIES	
PHYSICAL ADDRESS OF FACILITY OR FACILITIES	Bergius Road, Sasolburg, 1947
GPS CO-ORDINATES OF WASTE GENERATING FACILITY OR FACILITIES	Cyanide plant, Midlands site 26°49'53.51"S: 27°52'03.76"E 26°49'57.08"S: 27°52'07.16"E 26°50'0.58"S: 27°52'03.60"E 26°49'57.79"S: 27°51'58.71"E 26°49'57.22"S: 27°52'03.44"E (centre point)
CONTACT PERSON	
NAME	Koos Fourie (Sasolburg Operations (SO): Senior Manager Production, Poly2,3/Cyanide)
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* DETAILED DESCRIPTION OF WASTE GENERATING PROCESS	Current Sasolburg Operations (SO) process: For reaction to take place solid graphite coke particles are used in the reactor suspended in a fluidised bed where it is heated by electric resistance between particles and the electrodes. The graphite fed to the system is sorted into four size fractions. The one size is the coarse soot which is drained from the coke system as a waste stream.	
PRODUCTION PROCESS FLOW CHART ATTACHED	YES X	NO
IDENTIFICATION OF HAZARDS		
WASTE CLASSIFICATION	HAZARDOUS	GENERAL
	X	
IF WASTE IS HAZARDOUS LIST THE HAZARDS OF THE WASTE	Health hazards due to the presence of cyanide	
*A process flow chart must be attached to the process description		

RISK ASSESSEMENT WITHOUT MITIGATION

Beneficial use of coarse soot in the carbon and AFR sectors (Replacement material substitute for specialised carbon products & AFR.)

Activity	Risk Description	Environmental receptors	Impact	Assessment of the risk			Significance
				Probability	Magnitude	Duration	
1. Loading of coarse soot onto trucks	Loss of containment of coarse soot	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: environmental significance
2. Transportation of coarse soot	Loss of containment of coarse soot	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: environmental significance
		Land	<ul style="list-style-type: none"> Load of coarse soot 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: environmental significance
		Water	<ul style="list-style-type: none"> Load of coarse soot 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: environmental significance
3. Off-loading of coarse soot	Loss of containment of coarse soot	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: environmental significance
4. Storage of coarse soot	Loss of containment of coarse soot	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: environmental significance
		Land	<ul style="list-style-type: none"> Coarse soot carried by runoff deposited on land in the vicinity of the coarse cyanide soot storage area Land degradation 	Inherent: Medium probability: 3	Inherent: Minor: 2	Inherent: Short term (0 to 12 months): 2	Inherent: Site only: 1 Inherent: environmental significance
		Water	<ul style="list-style-type: none"> Coarse soot carried by runoff deposited in storm water channels and water body in 	Inherent: Low probability: 2	Inherent: Low: 4	Inherent: Short term (0 to 12 months): 2	Inherent: Residual: Local: 2 Inherent: environmental significance

5. Handling of coarse soot (i.e. screening, crushing, blending etc.)	Loss of containment of coarse soot	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
a. Replacement material substitute for specialised carbon products	The point at which coarse soot enters the production process for specialised carbon products & AFR to the actual products is outside the scope of this risk assessment. The incorporation of coarse soot into these existing production processes is matured. The quality of the products from these processes is regulated by relevant standards.							
b. AFR								
6. Disposal of coarse soot and coarse soot containing products	Loss of containment of coarse soot	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Residual: Medium probability: 3	Inherent: Minor: 2	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 coarse soot disposed illegally on land Land degradation 	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"> Illegally disposed coarse soot reaching water body in the vicinity of the dumping area Water 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
7. Residual coarse soot stockpiled after closure, decommissioning or change of ownership of user facility	Loss of containment of coarse soot	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	Inherent: Medium probability: 3	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Site only: 1	Inherent: 12, low environmental significance
		Land	<ul style="list-style-type: none"> Coarse soot carried by runoff deposited on land in the vicinity of the coarse soot storage area Land degradation 	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"> Coarse soot carried by runoff deposited in storm water channels and water body in the vicinity of the coarse soot storage area 	Inherent: Low probability: 2	Inherent: Low: 4	Inherent: Short term (0 to 12 months): 2	Residual: Local: 2	Inherent: 16, low environmental significance

I, Koos Fourie 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) Eduard Hermanus Jacobus Fourie.

Designation Sasolburg Operations (SO): Senior Manager Production, Poly 2,3/Cyanide

Signature



Date 16/10/2019

Place Sasolburg



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

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