



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	Fine soot
BENEFICIAL USE/S	Sasol fine soot may be beneficially utilised in the carbon and Alternative Fuels & Resources (AFR) sectors. Its uses may include but are not limited to: (a) AFR (b) Raw material substitute for specialty carbon products
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	
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* DETAILED DESCRIPTION OF WASTE GENERATING PROCESS	Current Sasolburg Operations (SO) process: Fine soot is produced from the natural gas cracking reaction creating a fine carbon powder in the reactor. The fine carbon powder is then entrained from the reactor before being cooled down and send to a bag filter here the bag filter will strip the solid powder from the gas stream. The bags will then get pulsed and the soot particles will drop into a collection hopper where it will be mainly removed from the process when the hopper gets full.	
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 fine soot in the carbon and AFR sectors (Raw material substitute for specialty carbon products & AFR)

Activity	Risk Description	Environmental receptors	Impact	Assessment of the risk				Significance
				Probability	Magnitude	Duration	Scale	
1. Loading of fine soot onto trucks	Loss of containment of fine 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
2. Transportation of fine soot	Loss of containment of fine 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: 25, low environmental significance
		Land	<ul style="list-style-type: none"> Load of fine 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: 21, low environmental significance
		Water	<ul style="list-style-type: none"> Load of fine cyanide 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: 27, low environmental significance
3. Off-loading of fine soot	Loss of containment of fine 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
4. Storage of fine soot	Loss of containment of fine 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: 16, low environmental significance
		Land	<ul style="list-style-type: none"> Fine soot carried by run-off deposited on land in the vicinity of the fine 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: 15, low environmental significance
		Water	<ul style="list-style-type: none"> Fine soot carried by run-off deposited in storm water channels and water body in 	Inherent: Low probability: 2	Inherent: Low: 4	Inherent: Short term (0 to 12 months): 2	Residual: Local: 2	Inherent: 16, low environmental significance

5. Handling of fine soot (i.e. screening, crushing, blending etc.)	Loss of containment of fine soot	Air	<ul style="list-style-type: none"> Localised dust generation Air pollution 	the vicinity of the fine soot storage area	Inherent: Definite: 5	Inherent: Minor: 2	Inherent: Immediate: 1	Inherent: Site only: 1	Inherent: 20, low environmental significance
a. AFR b. Raw material substitute for speciality carbon products	The point at which fine 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 fine soot into these existing production processes is regulated by relevant standards.								
6. Disposal of fine soot and fine soot containing products	Loss of containment of fine 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 fine cyanide 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 fine cyanide 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 fine soot stockpiled after closure, decommissioning or change of ownership of user facility	Loss of containment of fine 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"> Fine soot carried by run-off deposited on land in the vicinity of the fine 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"> Fine soot carried by run-off deposited in storm water channels and water body in the vicinity of the fine 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	

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, 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) Eduardus 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	<input type="checkbox"/>	Not Authorised(provide reasons)	<input type="checkbox"/>
Reference Number				