



# **Sasol Chemical Industries**

## **Sasolburg Operations**

**AEL No: FDDM-MET-2013-23**

# **Annual Emission Report**

**Prepared for**

**Fezile Dabi District Municipality**

**29 August 2014**

**Reporting period: July 2013 – June 2014**

**Date Submitted: 29 August 2014**

## DECLARATION

Unless otherwise specified in the body of the report, Sasol Chemical Industries, Sasolburg Operations, certifies that the sampling campaign for periodic emission monitoring for the entity which was formerly known as Infrachem, was conducted during normal plant operating conditions.

**29 August 2014**

**Date**



**Emission Control Officer: Ristoff van Zyl**

**29 August 2014**

**Date**



**Responsible Officer:**

## EXECUTIVE SUMMARY

The content of this report is in alignment with the requirements of section 7.7 of the Atmospheric Emission Licence (AEL), which include the following:

- Pollutant emissions trends<sup>1</sup>
- Compliance audit reports
- Major upgrades projects (i.e. abatement equipment or process equipment)
- Greenhouse gas emissions


The information pertaining to these items above are addressed in the relevant subsection in the body of the report.

Sasol Chemical Industries' Infrachem plants complied fully with its Atmospheric Emission License requirements.

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<sup>1</sup> Please note that there are no pollutant emissions trends available for the initial report.

## REPORT DETAILS

REFERENCE	SCI: FY14 Annual Emission Report - FDDM-MET-2013-23	
REPORT TITLE	Annual Emission Report	
DATE SUBMITTED:	29 August 2014	
PREPARED FOR:	Fezile Dabi District Municipality Metsimaholo Municipality Free State Province  (Licencing Authority)	
PREPARED BY:	Sasol Chemical Industries: Sasolburg Operations  Klasie Havenga Road Sasolburg 1947  Tel: +27 (0)16 920 4913 E-mail: ristoff.vanzyl@sasol.com	
DESCRIPTION OF SITE (Erf)	Subdivision 6 of 2 of Driefontein No- 2 and certain subdivisions of the farm Saltberry Plain, Roseberry Plain Flerewarde and Antrim and subdivision 5 of 4 of Montrose, District of Sasolburg, Free State	
INSUTRY SECTOR	Petrochemical	
SITE COORDINATES	Latitude 27.84206E Longitude 26.82678S	
SIGNED:	Ristoff van Zyl	Signed: 
APPROVER:	Bob Kleynjan	Signed: 

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## ACRONYMS

The following abbreviations appear in this report:

US EPA	United States Environmental Protection Agency
GHG	Greenhouse gas
PM	Particulate Matter
VOC	Volatile Organic Compounds
NO <sub>x</sub>	Nitrogen oxides
NO <sub>2</sub>	Nitrogen dioxide
NO	Monoxide of nitrogen
SO <sub>2</sub>	Sulphur dioxides
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxides

# 1 INTRODUCTION

Sasol Chemical Industries, Sasolburg Operations (SCI) are required to submit its annual atmospheric emissions compliance report 60 days after the closure of its financial year end.

Based on these conditions, stipulated within Sasol Chemical Industries' Sasolburg Operations' Atmospheric Emission License, as well as the condition stipulated within Section 17 of the Minimum Emission Standards, SCI herewith submits its annual compliance monitoring report for its Infrachem plants, License number FDDM-MET-2013-23.

The report covers the reporting period from July 2013 to June 2014. VOC and isokinetic, together with inorganic gas, emissions monitoring were conducted by two separate and independent service providers. Since an accreditation system for stack sampling is not in place, neither of the two sampling companies are accredited, however both have expressed their desire to be accredited as soon as the accreditation system has been established.

Continuous Emissions Monitoring also formed part of the compliance monitoring for the plant, specifically with relation to its particulate emissions from the boilers and NOx emissions from its Nitric Acid plant.

A comparison with license conditions will be made to prove compliance with Sasol's emission limits as specified within its Atmospheric Emission License.

## 2 SERVICE PROVIDERS

In accordance with Section 21 (GN 893:2013), SGS South Africa and LEVEGO were the independent companies who have performed the necessary emissions testing for Sasol, upon which the results / reports are based. The results from the sampling campaign are presented in the relevant section of the report (results section).

### 2.1 *SGS Environmental Services*

The services provided by SGS South Africa for source emission testing are as follows:

- Basic stack emission testing
- Automatic Isokinetic stack sampling for compliance, commissioning, process control and efficiency testing
- Fugitive and area specific emission assessments
- Vent emission testing
- Reports based on analysis of dust, SO<sub>2</sub>, NO<sub>2</sub>, metals, VOCs, SVOCs, dioxins and furans, chlorides and fluorides.

Their contact details appear in Table 2.1.1 below

**Table 2.1.1: SGS Contact details**

SGS Contact details	
Physical address	58 Melville Street, Booyens Johannesburg, 2135 South Africa
Postal address	P.O. Box 82582, Southdale Johannesburg, 2135 South Africa
Telephone No:	+27 11 681 2500
Fax No	+27 11 433 365
Email	envi.africa@sgs.com



## 2.2 LEVEGO

Levego specialise in the consulting and provision of stationary source, air quality and process off-gas measurements and supply of specialised source monitoring equipment.

Their main drive is to provide a service which meet customer requirements by utilising recognised international standards (such as ISO, B.S, EN and EPA).

Levego's members have over forty-five years combined experience in the field of air pollution monitoring and industrial pollution control.

**Table 2.2.1: LEVEGO Contact details**

LEVEGO Contact details	
Physical address	Building R6, Pinelands Site Ardeer Road, Modderfontein 1645
Postal address	PO Box 422, Modderfontein 1645
Telephone No:	+27 11 608 4148
Fax No	+27 011 608 2621
Email	info@levego.co.za

### 3 MONITORING AND SAMPLING METHODOLOGY

SCI's Infrachem facility conducts online monitoring for particulates in each of its boilers and NOx for its Nitric acid plant. Ad hoc sampling is conducted by Service Providers according to the Regulations. Both the online and ad hoc sampling results are included within the table below.

## 4 RESULTS

### 4.1 Pollutant emissions

Table 4.1.1: Sampling results

Point source	Volumetric flow rate (Nm <sup>3</sup> /h)	Pollutant	Mass flow (kg/h)	Concentration (mg/Nm <sup>3</sup> )	Limit value on AEL (mg/Nm <sup>3</sup> )	Sampling method
SS1 Boiler 4	127 752	PM	18.9	148	400	Continuous online monitoring
SS1 Boiler 5&6	239 742	PM	34.2	143	400	Continuous online monitoring
SS1 Boiler 7&8	277 388	PM	41.5	150	400	Continuous online monitoring
SS2 Boiler 1-7	772 156	PM	99.7	129	265	Continuous online monitoring
Thermal Oxidation (9690 furnace)	118 333	CO	2.38	41.75	75	US EPA method 10
		NO <sub>2</sub>	<0.117	<2 ppm	80ppm	US EPA method 7

		SO <sub>2</sub>	89.55	<0.1%	2.7%	US EPA method 6
Thermal Oxidation (9630 furnace)	74 559*	PM	*: Sampling for this unit was conducted twice during the reporting period, however both times upset conditions resulted in invalid results. The sampling campaign was repeated in August 2014 and results will be reported as soon as it is available		50	US EPA method 5
		NO <sub>x</sub>			250ppm	US EPA method 7
		SO <sub>2</sub>			600ppm	US EPA method 6
Thermal Oxidation (Caustic Incinerator)	23 974	PM	1.74	52.5	200	US EPA method 5
Prill Tower	132 221	PM	4.22	32	50	US EPA method 5
Prill Scrubber stack 1	73 476	PM	1.19	13.38	50	US EPA method 5
Prill Scrubber stack 2	73 476	PM	1.19	14	50	US EPA method 5
Nitric Acid Plant	150 000	NO <sub>x</sub>	7.5	117	500	Continuous online monitoring

## 4.2 Compliance audit reports

Audit finding	Corrective action taken	Status
Compliance audit reports were not conducted on the AELs during the 2013/2014 Financial year due to the licenses only being received in March 2014. This section will be completed and reported on during the next financial year's annual compliance report. However, it is confirmed that Sasol is committed to ongoing internal reviews of its licence conditions during the year and in the unfortunate event that there are non-compliances identified, these will be appropriately reported as required by applicable regulatory requirements.		

### 4.3 Major upgrades projects

Project description	Planned completion date	Status
None		

### 4.4 Greenhouse gas emissions

Total Direct CO <sub>2eq</sub> emissions	5 276 kt
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## 5 NON COMPLIANCE

Non-compliance description	Action to be implemented	Completion date	Status
None			

## 6 CONCLUSIONS

Based on the results reported, Sasol Chemical Industries' Infrachem plants met all its compliance requirements for the financial year.

Sampling at the B6930 incinerator was completed during August 2014 and the results will be shared with the Fezile Dabi Air Quality Officer as soon it is available.