

Rayten

ENGINEERING SOLUTIONS

DISCOVER OUR INNOVATIVE AIR
QUALITY SOLUTIONS AND TAKE
CONTROL OF YOUR AIR
QUALITY COMPLIANCE



Rayten Engineering Solutions has provided air quality monitoring and management services to a wide range of industries, government departments and consulting companies since 2009.

We are a skilled and dedicated team of scientists, engineers and technicians that work together to provide our clients with unmatched quality and objective scientific reports that meet local and international air quality legislation and **ISO/IEC 17025 standards**. Rayten Engineering Solutions

is a **Level 1 B-BBEE** company.



OUR SERVICES

- ✓ **Air Quality Impact Assessments**
- ✓ **AEL Applications, Audits and NAEIS Reporting**
- ✓ **Stack Emission Monitoring**
- ✓ **LDAR Monitoring**
- ✓ **Ambient and Dust Fallout Monitoring**
- ✓ **Air Quality Training**
- ✓ **Occupational Hygiene Surveys**
- ✓ **GHG Reporting and Carbon Tax**
- ✓ **Noise Monitoring and Impact Assessments**
- ✓ **Climate Change Impact Assessments**



AIR QUALITY IMPACT ASSESSMENT

An Air Quality Impact Assessment Report and Dispersion Modelling are required to be submitted to the relevant authority when wanting to apply for an Environmental Authorisation and/or AEL.

Air Quality Impact Assessments and Dispersion Modelling are vital tools that can be used by both the emitter and the regulatory authority.



NO MATTER WHAT YOUR NEEDS, **RAYTEN ENGINEERING SOLUTIONS** HAS THE EXPERTISE AND RESOURCES TO:



Compile Air Quality Impact Assessment Reports (Level 1, 2 and 3) in line with the National regulations.



Undertake Baseline Air Quality Assessments, including the monitoring, data analysis and verification.



Conduct Dispersion Modelling using the Nationally accepted and approved models such as AERMOD and CALPUFF



AEL APPLICATIONS, AUDITS AND NAEIS REPORTING

● ATMOSPHERIC EMISSION LICENCE ANNUAL REPORTING

Any facility that has been issued an AEL is legally required to comply with the conditions of that licence. All AEL holders are required to submit an annual AEL report to the relevant licensing authority at least once a year. This report is made up of various documents and reports for example stack monitoring results, a summary of complaints and management plans. All AEL holders are also required to submit an AEL compliance audit report as part of the annual AEL report. The audit is an important document that is used to assess the level of compliance of an AEL holder with all the conditions contained within the licence and will highlight areas that require improvement. AEL compliance audits should be conducted at least once a year by an independent consultant.

● SOUTH AFRICAN ATMOSPHERIC EMISSION LICENCING AND INVENTORY PORTAL (SAAELIP)

The development of the South African Atmospheric Emission Licencing and Inventory Portal (SAAELIP), which "houses" both the System for National Atmospheric Emission Licencing (SNAEL) and the National Atmospheric Emission Inventory System (NAEIS), has allowed for a central platform within which facilities can manage licence applications, existing licences, reporting requirements, annual emission inventories and compliance reports.

● NATIONAL ATMOSPHERIC EMISSION INVENTORY SYSTEM (NAEIS)

The National Atmospheric Emission Inventory System (NAEIS) is an internet-based emission reporting tool that allows facilities to report their emissions on an annual basis. In terms of the National Atmospheric Emission Reporting Regulations, NAEIS regulates the reporting of data and information from sources of atmospheric emissions within South Africa. The system aids the with the development of a national emission inventory and allows South Africa to meet reporting obligations in line with international policies. Reporting occurs between 1 January and 31 March of each year.

● RAYTEN HAS YEARS OF EXPERIENCE IN UNDERTAKING THE FOLLOWING SERVICES:



AEL Application Process



SAAELIP



AEL Compliance Audits



AEL Annual Reporting



NAEIS Reporting (due by 31 March each year)



STACK EMISSION MONITORING

Among other reasons, Stack Emissions Monitoring is routinely undertaken to demonstrate compliance against limits outlined for permitted processes.

Rayten has over 10 years of Stack Emissions Monitoring experience.

During this time, our team have performed stack emission tests and surveys on point sources for Southern Africa and International Clients.

RAYTEN SAMPLING TEAMS ARE HIGHLY EXPERIENCED AND HAVE BEEN EXPOSED TO A WIDE VARIETY OF PROCESSES AND INDUSTRIES:



Energy from Waste



Incinerators



Power Generation



Renewable Energy



Cement and Lime



Chemical and Pharmaceutical



Metals Processes



Gas Turbines



Crematoria



Petrochemical



Wood and Fibre Board Processes



Food and Beverage



Boilers



Rayten Engineering is SANAS accredited for stack emission monitoring. Our ever-expanding scope of ISO/IEC 17025 guarantees that our Stack Emissions Monitoring is strictly undertaken to the highest standard using only highly experienced accredited staff and equipment.

Rayten conducts emission tests in accordance to internationally accepted methods to ensure consistency when measuring for numerous pollutants including, but not limited to:

✓ **Particulate Matter (PM)**

✓ **Oxygen % (O₂)**

✓ **Carbon Dioxide (CO₂)**

✓ **Sulphur dioxide (SO₂)**

✓ **Oxides of Nitrogen (NO_x)**

✓ **Carbon Monoxide (CO)**

✓ **Hydrogen Chloride (HCl)**

✓ **Hydrogen Fluoride (HF)**

✓ **Hydrogen Sulphide (H₂S)** (Not yet accredited)

✓ **Polychlorinated Biphenyls**

✓ **Ammonia (NH₃)**

✓ **Total Volatile Organic Compounds (TVOCs)**

✓ **Metals including Mercury (Hg)**

✓ **Total and Hexavalent Chromium**

✓ **Polycyclic Aromatic Hydrocarbons (PAH)**

✓ **Chlorine (Cl₂)**

✓ **Dioxins and Furans**

✓ **Gaseous Cyanide as Hydrogen Cyanide**

Additionally, Stack Emissions Monitoring is also used in many other contexts. Operators can benefit from having stack emissions sampling, testing or analysis undertaken for other reasons including:

✓ **Calibration and Correlation Tests of Continuous Emissions Monitoring Systems -**
Accredited by using US EPA Performance Specification 11

✓ **Abatement Plant Optimisation**

✓ **Process Optimisation**

✓ **Odour Investigations**

✓ **ISO 14001 Accreditation**

✓ **Resolving External Disputes**





LDAR MONITORING

Rayten conduct LDAR programs throughout Southern Africa and globally in accordance with US EPA Method 21. The petroleum, tar and organic chemical industries are required to conduct LDAR programs as per the legislated listed activities.

The aim of LDAR surveys is to detect and notify the customer of any leaking equipment; including valves, pumps and connectors, in order to reduce the emissions of fugitive volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). It is the most effective method of controlling fugitive emissions on site.

Rayten uses approved leak detection methods and equipment (FID & PID monitors and gas detection cameras) to determine the concentrations.

- ☒ **Identify Process Lines and Components**
- ☒ **Tagging Components**
- ☒ **Record Emissions on a Database**
- ☒ **Reporting Findings**
- ☒ **Re-measure to ensure Leak Free.**





AMBIENT AND DUST MONITORING

Dust fallout is a major problem arising from various mining, industrial, construction and even farming activities, which can have an impact on health, infrastructure and agriculture. Dust fallout monitoring is a cost-effective method to measure the amount of dust being deposited on the ground and provide information to determine effectiveness of control strategies.

Dust fallout monitoring can take place over a short or long period. Long term monitoring will give a good indication of dust fallout patterns during different seasons and operational conditions and assist management to make informed decisions to reduce dust fallout.



Rayten Engineering Solutions is SANAS accredited to provide dust fallout monitoring, sampling and analysis in accordance with ASTM D 1739 and SANS 1137. Rayten will take care of your dust fallout monitoring network and provide comprehensive and accurate monthly reports that meet the requirements of air quality legislation. Rayten can assist with ambient air quality monitoring of gases, TSP, PM_{10} and $PM_{2.5}$. We will install, maintain and remotely download data from any analyser and provide monthly reports that meet the clients' specific requirements.





AIR QUALITY TRAINING

Rayten has put together a comprehensive air quality training course that covers a wide range of topics. Should you be interested in a quote for training please email:

info@rayten.co.za

OCCUPATIONAL HYGIENE

Our occupational hygienist is a Department of Labour Approved Inspection Authority (AIA) and ISO 17020:2012 accredited for conducting the following:

- ☒ Hazardous Chemical Substances Assessments
- ☒ Asbestos Monitoring
- ☒ Lead Monitoring
- ☒ Assessment and testing of mechanical extraction and ventilation systems
- ☒ Conducting and assessing noise levels in the workplace, area monitoring and personal noise dosimetry

ASSESSMENT OF THE FOLLOWING OCCUPATIONAL HYGIENE STRESS FACTORS CAN ALSO BE CARRIED OUT:

☒ Risk Assessments

☒ Hand Arm Vibration

☒ Whole Body Vibration

☒ Illumination Assessments

☒ Heat Stress Assessments

☒ Cold Stress Assessments

☒ Baseline Ergonomic Assessments

☒ Personal Protective Equipment Assessment

☒ Chemical Compatibility Assessments





GHG REPORTING AND CARBON TAX

● GHG REPORTING

South Africa is committed to reducing their Greenhouse Gas emissions and meeting its own domestic targets in terms of the National Development Plan of 2012. Having ratified the Paris Agreement in November 2016, convened by the United Nations Framework Convention on Climate Change (UNFCCC), South Africa has set ambitious targets in a global effort to mitigate GHG emissions. The GHG mandatory reporting regulations and the Carbon Tax Act No.15 of 2019 are integral in ensuring South Africa's commitment to tackle Climate Change. Any person, company or entity who undertakes an activity (above a certain threshold) and is responsible for the release of Greenhouse Gas emissions is required to report on their emissions to the Department by the 31 March each year.

● CARBON TAX

Rayten Engineering Solutions can assist your company with their GHG emissions reporting and carbon tax calculation needs. We have the expertise to assist you with:



GHG emission inventory and reporting



National Atmospheric Emission Inventory System GHG Reporting (SAGERS)



Pollution Prevention Plans

(required if your CO_{2-eq} emissions exceed 0.1 Megatons in a reporting year)



GHG facility registration



Carbon tax calculations



Monitoring of GHG emissions for point sources (e.g. stacks and vents)





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