

# GETTING STRONGER

2016  
SAFETY, HEALTH,  
ENVIRONMENT  
AND QUALITY  
SUPPLEMENTARY  
REPORT

 **AFROX**  
A Member of The Linde Group



# Sheq

Safety, health,  
environment and  
quality supplementary  
report

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# Safety, health, environment and quality supplementary report 2016

This is a supplementary report to the 2016 integrated report and expands on Afrox's safety, health, environmental and quality performance. The full 2016 integrated report is available at [www.afrox.co.za](http://www.afrox.co.za).

## Overview

Afrox regards safety, health, environment and quality (SHEQ) performance as an ongoing strategic priority. We believe all injuries and incidents can be prevented, and strive to attain zero harm in all our operations. This philosophy is embedded in all spheres of our business by ingraining a sense of collective accountability that makes everyone a safety ambassador while allowing the philosophy to be driven by management. Line managers (supported by the SHEQ department), are responsible for communicating this policy, demonstrating safe behaviour, and creating the right conditions for continual improvement. Our leaders continue to support local SHEQ agendas and the overall Afrox SHEQ philosophy.

This philosophy includes a range of stakeholders such as:

- Colleagues
- Contractors
- Suppliers
- Customers
- Local communities

The Company SHEQ policy provides mandatory guidelines for all areas of operation. The Safety Health and Environmental policy, as well as our Quality policy are available upon request from our communications department. Refer to page 53 of the integrated report for more information on the SHEQ Golden Rules that inform the SHEQ philosophy.

### SHEQ management system

Afrox's SHEQ department operates under the leadership of an executive manager who ensures that deliverable policies are proactive in terms of risk assessment and professional in their remediation.

### The SHEQ management system allows employee participation in SHEQ risk management.

The goal of the management system is to achieve compliance with industrial requirements, local and national legislation, and implementation of operational best practice in all areas of SHEQ. The Integrated Management System and Standards (IMSS) library documents all relevant standards.

Each of our sites operates within an integrated SHEQ management system based on the principles of ISO 9001, ISO 14001, and OHSAS 18001. This system takes into account various legislative requirements, The Linde Group and Afrox requirements, and allows for integrated SHEQ audits, risk assessments and management reviews. The Company

is still adapting its quality management system (ISO 9001) to a company-wide accreditation. ISO 14001, an environmental quality management system, is being implemented at key sites.

Risk assessments of our sites are conducted regularly, the results of which are thoroughly reviewed before mitigation measures are implemented where necessary.

A review of performance across SHEQ leading and lagging indicators led to the establishment of focus areas for the year. We will continue to address the following focus areas through our 2017 SHEQ plans:

- Leadership's knowledge of and accountability for SHEQ
- Management line of sight following the recent restructure of our operating model
- Risk management
- Vehicle safety
- Behavioural safety
- Incident management
- Occupational health and manual handling
- Environmental impacts (carbon emissions, energy, waste, water and accreditations at high impact strategic sites)
- Maintaining the quality of accreditations achieved throughout the Group.

## Health and safety

We adhere strictly to the global standards set by The Linde Group regarding employee safety. Employee wellness and safety are managed in an integrated manner with realistic and measurable targets set for development. There are established dedicated SHEQ committees at major sites to address SHEQ-related issues as per the requirements of the Occupational Health and Safety Act, 181 of 1993. Each committee is supported by senior management in discharging its responsibilities. We ensure that the all line managers have sufficient knowledge, tools and competence to discharge their SHEQ responsibilities, thereby contributing to an effective SHEQ performance culture.

### Performance in 2016

Afrox uses leading indicators to track and measure critical SHEQ interventions and performance to determine whether proactive action was successful.

Our performance improvement targets are set annually, and monitored and reported to executive management monthly. Where necessary, plans are put in place to improve areas where targets have not been reached.

# Safety, health, environment and quality supplementary report 2016 *continued*

## Behavioural safety

We believe that adhering to the Golden Rules of Safety promotes the desired behavioural change within the organisation and improves SHEQ performance. We deployed our behavioural ActSafe and DriveSafe programmes at an additional 16 operational sites, and believe this will positively contribute towards reducing significant and serious vehicle incident rates.

The purpose of the programmes is to:

- encourage a positive step change in SHEQ culture and behaviour;
- improve SHEQ performance;
- promote recognition of Afrox as a leading, high-performance SHEQ organisation;
- achieve zero harm;

- entrench an interdependent approach to SHEQ in all employees and service providers; and
- safely provide quality products and services to our clients.

The LeadSafe behavioural assessment tool continues to be used by our managers and business leaders. It allows them to demonstrate visible leadership in SHEQ by identifying and correcting unsafe behaviour and recognising safe behaviours. The deployment of the Afrox leadership in SHEQ programme is ongoing.

## Key safety leading indicators

The Group revises leading indicators annually to identify actual versus desired performance in various areas and drive the correct behaviours in pursuing targets.

Leading indicators	Performance improvement target	2016
Number of P1 audit findings issued	0	0
Number of overdue P2 audit findings	0	2
Overdue P3 audit findings (not to be greater than 2% of open P3s)	< 2%	16%
Close out 2010 to 2015 EMOCs <sup>1</sup>	80%	64%
Completion of internal integrated audit programme including all focused audits, e.g. transport	100%	100%
Deploy ActSafe and DriveSafe Behavioural Safety site programmes as per schedule	100%	100%
MHRP <sup>2</sup> licences	100%	99%
MHI <sup>3</sup> submissions completed	100%	35%
MCIR <sup>4</sup> investigations and corrective actions agreed by SHEQ and business within 60 days	100%	100%
MIR <sup>5</sup> investigations agreed by Group SHEQ and business within 60 days	90%	100%
Vehicle Severity 1 and 2 incident investigations and corrective actions agreed by SHEQ and business within 60 days	95%	100%
Total recordable incident investigation and corrective actions agreed by SHEQ and business within 60 days	95%	100%
pSIF <sup>6</sup> investigations and corrective actions agreed by SHEQ and business within 60 days	95%	100%

Our due diligence and management of operations continue to strengthen with continued low levels of overdue audit findings and improved rigour on key programmes such as the Behavioural Safety Programmes. We strengthened our focus on ensuring that incident investigation and implementation of corrective actions are completed in a timely manner.

## Safety trends

Afrox uses lagging indicators to track events and measure the safety performance over a specific time period.

Lagging indicators	Performance improvement target	2016
Manual handling (total recordable) injuries	6	10
PSIFs	0	5
Repeat MIR within 12 months	0	3

<sup>1</sup> Engineering Management of Change (EMOC)

<sup>2</sup> Major Hazard Review Programme

<sup>3</sup> Major Hazard Installation

<sup>4</sup> Major Customer Incident Report

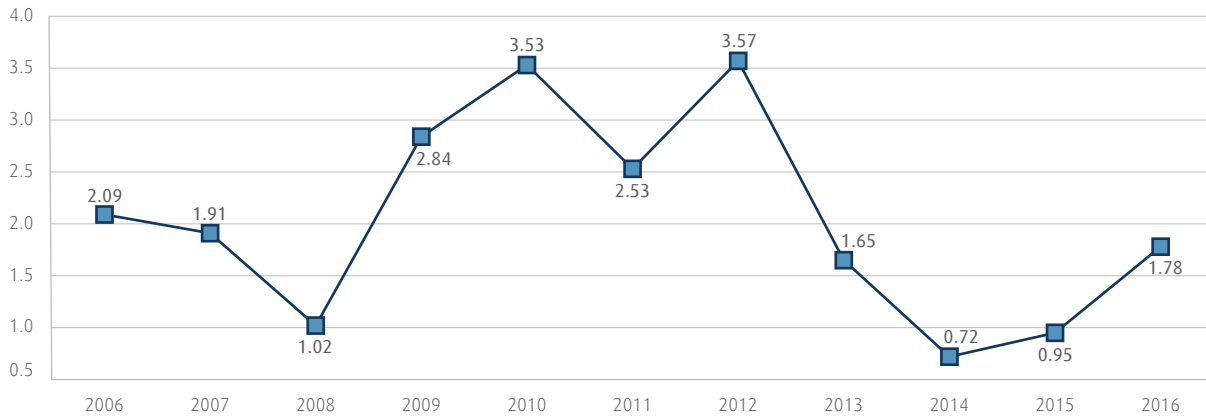
<sup>5</sup> Major Incident Report

<sup>6</sup> Potential severe injury and fatalities

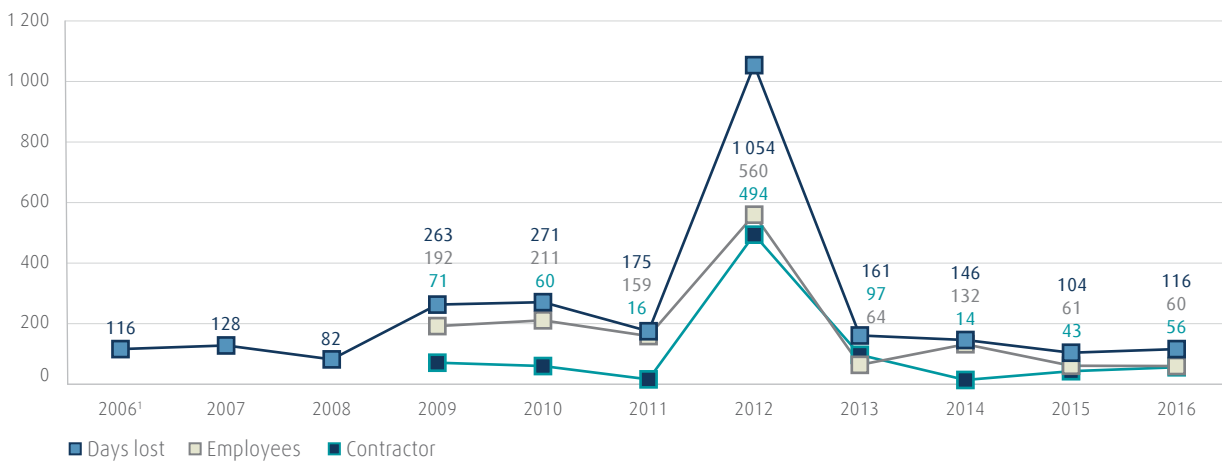
# Safety, health, environment and quality supplementary report 2016 *continued*

We track our lost-time and total recordable injuries, our vehicle incident rates, PSIF incidents, the number of total recordable injuries caused by manual handling activities, and major incidents. Performance to date is not sufficient. This is being addressed through a suite of action plans across the Group on key identified risks and root-cause analysis of the underlying causes of incidents.

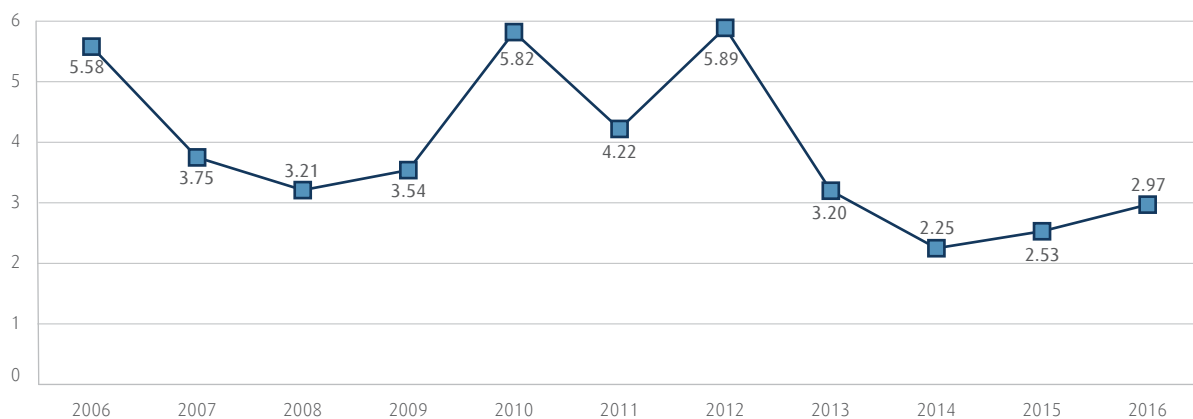
## Lost time injury rate



## Work days lost



## Total recordable injury case rate



<sup>1</sup> Only total data available between 2006 and 2008

# Safety, health, environment and quality supplementary report 2016 *continued*

As a result of the Company's restructure programme in the previous financial year, our injury rates were once again influenced by lower employee numbers resulting in a reduced number of hours for the metric and contributed the resulting higher rate. The impact of the recent restructure programme has had a positive net effect on the safety culture of our business, however, the increased number of injuries remains a priority concern for management.

The number of work days lost is dependent upon the type and severity of the injury and what is prescribed by the treating doctor. A significant contributor to work days lost is attributable to manual handling. Afrox

commits to improving incident management; providing robust incident investigation processes; and improving implementation of permanent and effective solutions, with consistent management effort and accountability. We still aim to achieve zero harm and, by association, zero fatalities and incidents. Our SHEQ philosophy, Golden Rules and policies will help us reach this non-negotiable goal.

## Transport and passenger car safety

We take all vehicle incidents into account when measuring vehicle performance in order to improve our results.

Lagging indicators as at 31 December 2016		Performance improvement target rate (number)	2016	Number
Passenger and light vehicle (PLV) incidents	Total	2.85 (50)	55	3.13
	Severity levels 1 and 2	0.29 (5)	1	0.06
	Severity level 3	0.57 (10)	11	0.63
	Severity level 4	-	43	2.45
	Total safe kilometres	-	319 441	-
	Severity levels 1 and 2 safe kilometres	-	1 756 228	-
Commercial vehicle incidents (CMV)	Total	1.88 (50)	69	2.60
	Severity levels 1 and 2	0.15 (4)	3	0.11
	Severity level 3	0.19 (5)	9	0.34
	Severity level 4	-	57	2.15
	Total safe kilometres	-	384 685	-
	Severity Level 1 and 2 safe kilometres	-	8 847 747	-

The number of truck incidents remained stable year-on-year. We are encouraged by the reduction in the number of significant and serious vehicle incidents, especially with passenger and light delivery vehicles. It is unfortunate that we had a slow manoeuvre truck tanker roll over (the first roll over since December 2013) as a result of poor judgement and behaviour by the driver. The truck jack-knifed causing moderate damage to the vehicle and minor injury to the driver. The year-end rate for passenger and light vehicle incidents is at 3.13 (2015: 2.93) and commercial vehicles show a rate of 2.60 (2015: 2.25).

There are a number of key programmes in place to further improve our performance, namely:

- The current deployment of our new Safe Driving policy
- Training for all employees in our "in-vehicle distractions while driving" standard
- The deployment of a business wide fatigue stand-down (see page 5 for more details)
- Continuation of our rollover prevention training programme in 2016, 144 (2015: 360) drivers were trained
- Continuation of our defensive driving training programme for truck and passenger car drivers
- Further deployment of our behavioural ActSafe and DriveSafe programmes for drivers
- Enhanced transport contractor management focus, including a contractor safety day
- Operational excellence tools such as drive-cam, lane assist and the introduction of fatigue monitoring technologies
- Continuous training in our various truck and passenger car safety standards
- Monitoring the successful completion of online and practical training
- Focused transport audits
- Use of mirror docking stations, and the fitment of forward-facing and downward-looking mirrors
- Using various tools to monitor driving behaviour, such as incidents of speeding from GPS reports, speeding fines and on-board-camera events
- Senior line management engagement
- Focused communication and vehicle safety awareness campaigns. An example being our association with the South African Arrive Alive campaign to raise further awareness of the everyday dangers and pitfalls to improve road safety

# Safety, health, environment and quality supplementary report 2016 *continued*

## ActSafe and DriveSafe behavioural programmes

During 2016, we continued our behavioural safety programme, called ActSafe, for truck drivers, site operators, and customer engineering service (CES) contractors. We continued deploying the DriveSafe behavioural safety programme for passenger car and light vehicle drivers. The objectives of these programmes are:

- to better understand how our drivers', operators' and CES contractors' behaviour is influenced;
- to understand how unsafe behaviour can be changed to reduce risk and occupational injuries; and
- to create an inter-dependent safety culture to eliminate incidents and injuries.

Critical behaviour checklist assessments and improved employee-management engagement are the outcomes associated with these programmes. Afrox has completed the rollout to 16 sites, and maintain the targets set in 2016 of achieving between 10 and 15 sites. This year increased focus was placed on on-site operators, factory and warehouse personnel, CES contractors and passenger car safety. These programmes remain a priority in our 2016 SHEQ plan due to their effective results in improving behaviour.

## Business wide fatigue stand-down

Drivers are empowered to speak to management if they are fatigued or cannot work and we implemented a newly developed driver risk profile system. The system allows Afrox to assess and monitor driver performance and compliance across a range of safety metrics such as incident rate and fatigue levels to target improvements. Our sales and marketing teams also cover great distances and have now been limited to 14 hours of work per day, including driving. Any work beyond this requires the employee to lodge/sleep over at the destination before continuing their journey, an added measure against fatigue.

## Learning management system

Afrox creates learning profiles for employees using the TRACCESS system, a learning database linked to The Linde Group's Integrated Management System and Standards (LiMSS). These required learning profiles specify the learning programme content for employees, ensuring ideal training on competence areas required to complete a task.

Contractors also receive suitable required learning' competency profiles and are expected to maintain the same level of competence and operational excellence. Competency levels for required learning have decreased slightly from 83% in 2015 to 79% in 2016.

## Major hazard installations

Identifying potential major hazard risks is essential to safe and sustainable operations. Afrox is an accredited inspection body for the assessment of risk on major hazards installations in line international standard ISO/IEC 17020:1998 from the SANAS. In addition, our Approved Inspection Authority (AIA) status under the South African Department of Labour allows us to conduct MHI studies.

As part our safety programme, we use the internal major hazard review programme (MHRP). This is a formal process for identifying and assessing large-scale site hazards that may pose risks to our employees and off-site public. These specialised risk assessments position Afrox

to potentially reduce and manage major risks linked to installation disasters. This MHRP is aligned to The Linde Group, the European SEVESO II Directives, USA OSHA Process Safety and South African Occupational Health and Safety Act.

## Health and occupational hygiene

Afrox uses an occupational health programme to aid in minimising major risks in the workplace (for example, noise exposure, manual handling and hazardous chemical exposure). We are on a journey to integrate this programme with our management system to further prevent contraction of occupational illnesses and diseases.

We employ qualified medical practitioners and supporting staff at eight sites in South Africa and at most of our major sites including those in other African countries. This ensures the wellbeing of our employees and maintenance of high health standards. At smaller sites, mobile occupational health clinics are used.

A medical surveillance programme is in place to monitor the health of our employees who are engaged in certain types of activities. Procedures for pre- and post-placement medical examinations have been implemented and occupational risk exposure profiles (OREPs) are being developed and implemented. These profiles define the type of medical surveillance needed for critical safety positions. To date, more than 950 individual OREPs have been completed and we will continue developing and implementing these in 2017.

# Safety, health, environment and quality supplementary report 2016 continued

<b>Manual handling</b>	Manual handling is a persistent occupational health risk for Afrox along with the high risk activity of cylinder handling. We had 15 (2015: 20) manual handling incidents in 2016. Manual handling incidents and injuries are monitored closely and investigations are supported by SHEQ specialists. Reduction of the risk of manual handling is improving business wide by raising awareness. Our internal standard was updated to include incident reporting and investigation guidelines. We have implemented associated training and assessment tasks to all employees and a business-wide team stand-down programme (refer to page 5 for further details).
<b>Noise exposure</b>	<p>Our focus on reducing noise exposure continues to yield results. No noise-induced hearing loss (NIHL) incidents were reported this year.</p> <p>Our hearing conservation programme will develop by focusing on:</p> <ul style="list-style-type: none"> <li>• site noise exposure risk;</li> <li>• completing noise surveys;</li> <li>• issuing appropriate personal protective equipment;</li> <li>• providing related training; and</li> <li>• medical surveillance.</li> </ul>
<b>Nitrous oxide (N<sub>2</sub>O) exposure</b>	Continuous monitoring of N <sub>2</sub> O takes place through gas detectors and the medical surveillance programmes. N <sub>2</sub> O exposure remains at acceptable, legal levels at our only plant and filling operation, the Germiston Gases Operation Centre.
<b>Silica exposure</b>	Afrox operates a medical surveillance programme at one of our factories where some employees may be exposed to crystalline silica. The surveillance programme monitors the health and wellbeing of employees who handle this hazardous substance. Afrox conducts exposure surveys and submits a report to the Department of Labour annually in line with regulatory requirements. The 2016 site survey indicated no exposure concerns.

## Environment

Afrox's environmental management controls are integrated into our SHEQ system. We use environmental standards to manage impacts relating to water, air, waste, industrial effluent and hazardous chemicals. The Company's key environmental challenges are still being addressed through these standards, namely energy consumption, sustainable use of resources, waste management, indirect air emissions linked to climate change and legal compliance.

Our sites use a global environmental reporting tool to report environmental data annually. This provides data on water consumption, electricity usage, raw materials consumption, carbon emissions, quantity of packaging materials used and data on hazardous and non-hazardous waste generated. Refer to page 10 of this supplementary report for statistical data. The Linde Group uses this data to compile submissions to the global Carbon Disclosure Project (CDP).

## Materials used

In order to continue being a leading supplier of industrial gases, Afrox uses a number of raw materials for different production processes outlined in the table below.

Production	Raw material	Business unit process
Welding and manufacturing	Metal, flux powders and chemicals	Afrox welding consumables factory
Self-rescue pack manufacturing	Chemicals, metal, rubber	Afrox self-rescue division
Bulk tank manufacturing	Mild and stainless steel	Afrox cryogenics
Cylinder maintenance	Shot, zinc wire, paint, thinners	Afrox Gases Operation Centre and filling sites
Acetylene production	Calcium carbide	Afrox Gases Operation Centre and filling sites
N <sub>2</sub> O production	Ammonium nitrate	Afrox Gases Operation Centre and filling sites

Afrox sites monitor their consumption of raw materials monthly and ensure processes deliver optimal yields and outputs while operating efficiently.



# Safety, health, environment and quality supplementary report 2016 continued

## Energy

Afrox performs internal audits to analyse the energy efficiency of our ASUs in line with our energy strategy and energy management system. These facilities make up the bulk of our electricity consumption, thus potential cost savings are exploited where feasible.

A 2016 energy reduction target of 2% was set, and we have experienced a 3% (2015: 6%) increase in purchased electricity since 2015 against a target of 2% (2015: 5% increase). A target of 2% has been set for 2017 after analysing 2016 data and we will continue to monitor our carbon footprint annually.

## Climate change

Afrox performs an annual systematic analysis to record and evaluate emissions from our business activities which are submitted to The Linde Group, consolidated and then submitted to the CDP. We consider the guidance set out in the Greenhouse Gas Protocol when accounting for greenhouse gases.

## Carbon footprint

	Unit	2016	2015	2014
<i>Direct greenhouse gas emissions (Scope 1)</i>				
CO <sub>2</sub> emissions	t	10 276	8 633	11 987
Afrox transport fleet	t CO <sub>2</sub> e	24 008	24 172	24 998
Other greenhouse gases	t CO <sub>2</sub> e	27	290	360
Total scope 1	t	34 311	33 096	37 345
<i>Indirect greenhouse gas emissions (Scope 2)</i>				
CO <sub>2</sub> emissions	t	441 336	427 460	354 544
of which by air separation plants	t	379 778	375 685	345 636
Total scope 1 and 2	t CO <sub>2</sub> e	475 647	460 557	391 890

Purchased electricity consumption increased by 3% (2015: 6%) as a result of increased production and our Port Elizabeth ASU coming on line. Indirect CO<sub>2</sub> emissions increased by 3% (2015: 16%) as a result of the increase in purchased electricity. Overall, CO<sub>2</sub> emissions, both direct and indirect, increased by 3.5% (2015: 14%).

We remain focused on pursuing opportunities to improve our electricity use and reduce our CO<sub>2</sub> emissions throughout our value chain. Afrox understands that the major contributor to our carbon footprint is indirect emissions through purchased electricity, and a direct correlation exists between our carbon footprint and electricity use. Our carbon footprint is calculated on an annual basis and communicated, enabling year-on-year progress to be monitored. We set annual reduction targets for purchased electricity as this has the most significant impact on carbon emissions. Our vast transport and distribution network makes vehicle transport essential to our successful operation.

ASUs are responsible for the majority of our indirect CO<sub>2</sub> emissions while producing nitrogen, oxygen and argon. The global goal of The Linde Group is to improve the average energy intensity of ASUs globally by 5% by 2017 (base year 2008).

## NO<sub>x</sub>, SO<sub>x</sub>, and other significant air emissions

Afrox monitors emissions of air pollutants with greenhouse gas emissions and remains committed to phasing out hydrochloro-fluorocarbons (HCFCs) in the market. This is in line with the South African government's commitment to the reduction as per the timeframes outlined in the Montreal Protocol. Old air conditioners are being gradually phased out and replaced by energy efficient air conditioners that are ozone friendly, significantly reducing harm to the environment. All our dissolved acetylene plants have Air Emissions

Licences in compliance with the National Environmental Management: Air Quality Act, No 39 of 1994.

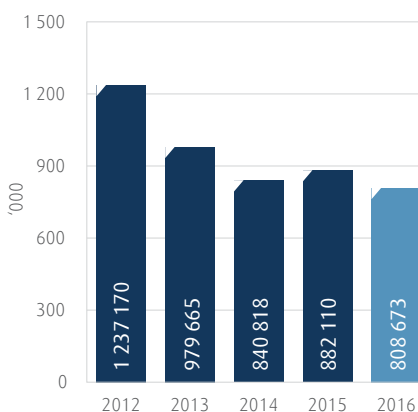
## Water

Afrox sources its water from municipal or regional utilities. Various sites use boreholes for gardening purposes. Overall, our activities do not have a significant effect on any water source, natural habitat or related ecosystems. We have developed a tactical water plan in response to water security and water affordability risk.

Our primary water uses:

- manufacturing of specific gases, such as acetylene and nitrous oxide;
- hydrostatic testing of vessels and cylinders;
- cooling systems;
- emergency deluge systems; and
- office purposes.

## Total water consumption (m<sup>3</sup>)



# Safety, health, environment and quality supplementary report 2016 continued

All of our sites are required to monitor and report water consumption to allow the Company to analyse consumption and identify improvement areas. We raised awareness among employees to be dutiful and sensitive to the current water scarcity caused by the ongoing drought while considering on-site water harvesting opportunities to further reduce consumption.

<b>Emissions to water</b>	In line with local regulatory requirements, Afrox reports emissions data for all our sites. No permit contraventions or significant spills were reported this year.
<b>Waste water</b>	Waste water is directed to on-site effluent treatment or municipal plants for purification. Our sites only discharge industrial effluent into municipal sewer systems under permit. Permits have been issued by local authorities to 16 sites that monitor the quality of the effluent regularly. Management interventions may take place where necessary to ensure compliance with permit conditions.

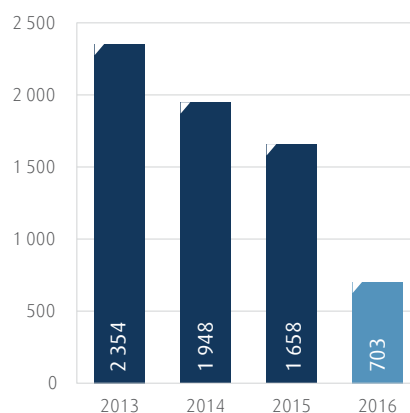
## Waste

Afrox recycles waste products where possible and continuously strives to reduce and avoid waste. All disposed waste is executed in line with local regulations. Waste generated is classified as hazardous or non-hazardous as per national legislation. The treatment and disposal of general and unavoidable hazardous waste is governed by our standard for waste management to ensure legal and ethically responsible action. The standard makes provision for the responsible handling and legal storage and disposal of waste streams. This includes scrap cylinders, chemical containers, carbide sludge, empty waste oil, asbestos and spent fluorescent tubes, among others.

Our SHEQ department ensures that all contractors used for transporting and subsequent disposal of hazardous waste are Afrox approved and that their operations are audited regularly. Where possible, hazardous waste (such as oil, empty chemical containers, used solvents, paint-related waste and asbestos) is recycled or safely disposed of at licensed facilities.

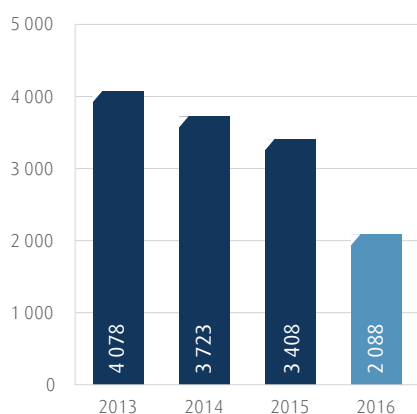
Our sites adhere to SHEQ and legal requirements by using waste inventories and conducting regular inspection of waste areas to ensure waste assembly and storage areas are at acceptable standards.

## Hazardous waste (tonnes)



Hazardous waste decreased by 39% (2015: 13%) and there is a trend of decreasing waste production overall for the last three years. This is due to the closure of the massing plant and various recycling initiatives.

## Total waste (tonnes)



# Safety, health, environment and quality supplementary report 2016 **continued**

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<b>Asbestos</b>	The Company has an asbestos phase-out plan for dissolved acetylene cylinder massing and demassing. Our phase-out plan for asbestos in cylinder massing activities is on schedule. As per legal requirements, an annual external audit was conducted and, for a consecutive year, no noteworthy issues were raised.
<b>Environmental expenses</b>	The following typical expenses were incurred this year: <ul style="list-style-type: none"><li>• asbestos phase-out plan audit;</li><li>• spill prevention equipment;</li><li>• environmental training courses;</li><li>• consultancy fees for environmental impact assessments and external audits;</li><li>• process and infrastructural modifications; and</li><li>• site contamination assessments.</li></ul> <p>No fines related to environmental legislative compliance were received for 2016.</p>
<b>Biodiversity</b>	Our environmental management programme requires that we examine the potential impact of our activities on biodiversity in operation and in new site planning. Most of our sites are in industrial or commercial zones. When protected habitats are located in close proximity to our sites, we take steps to ensure there is no impact.  Plans are being considered to rehabilitate the ground contamination caused by the ground pollution at the Welding Consumable Factory in Brits from 2016.

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## Quality and product stewardship

Afrox uses a quality management system to ensure all products and services are supplied to international, national and Company standards. These standards are housed within the online LiMSS library and mandate the testing frequency, required minimum standards, and the test equipment used in ensuring products and service meet required criteria. The Afrox Quality Council, established in 2013, continues to bring together various key stakeholders from our production processes to review our quality programmes and create appropriate, value adding action plans. This resulted in better reporting, winning back lost customers and a reduction in major customer incidents.

### Certifications

The Germiston Gases Operation Centre (GOC) achieved the SANAS ISO 17025 accreditation in April 2016 for its laboratory. All CO<sub>2</sub> sites were recertified for FSSC 22 000:2010 requirements, which is a major requirements of some of our significant customers. Our test shops continue to be accredited by SANAS for ISO 17020 requirements. Our welding consumables factory has again been certified for compliance with EN 13479 by TÜV Rheinland AG, a global provider of technical, safety, and certification services.

For 2016, the key quality focus areas were to:

- achieve multi-site accreditation for ISO 9001:2008 under the current Afrox operational structure;
- conduct training on the new ISO 9001:2015 standard to key stakeholders;
- conduct integrated management reviews per current structure and new requirements for ISO 9001:2015;
- continue with supplier partnership programmes with our customers; and
- support good manufacturing compliance.

For 2017, the key quality focus areas will be:

- embedding a quality culture at every level of Afrox;
- working to achieve complete certification for the business;
- transitioning to ISO 9001:2015 requirements;
- introducing quality behavioural programmes;
- measuring and reducing costs of poor quality;
- effectively managing critical suppliers;
- continuing our focus on the reduction of avoidable credit notes; and
- achieving full authorisation status for CO<sub>2</sub> plants currently on conditional authorisation.

### Product stewardship

To Afrox, product stewardship means ethical management of products and their packaging at all stages of the product life cycle, thereby minimising their health, safety, environmental and social impact.

We take a holistic view of product stewardship, encouraging all stakeholders in the extended life cycle of our products to take shared responsibility for minimising impacts associated with the production, delivery, use and end-of-life disposal of our product. We go beyond legislative obligation in this manner to display our commitment to ethical environmental stewardship.

Refer to [www.afrox.co.za](http://www.afrox.co.za) for material safety data sheets on all Afrox products.

# Safety, health, environment and quality supplementary report 2016 *continued*

## Internal audit programme

Afrox continues to use an internally developed risk-based internal audit programme focusing on leadership commitment and responsibility, quality, safe systems of work, contractor management, management of change, manual handling, good manufacturing practice and transport management.

	2016	2015	2014	2013
Sites certified to ISO 9001 <sup>1</sup>	100%	100%	100%	100%
Sites certified to ISO 14001 <sup>1</sup>	100%	100%	100%	100%
Sites certified to OSHAS 18001 <sup>1</sup>	100%	100%	100%	100%

A detailed list of awards, certification and accreditation is available online at [www.afrox.co.za](http://www.afrox.co.za).

## Further SHEQ data

The tables below provide year-on-year data of Aprox resource usage for the last five years, specifically energy, water, raw material usage, and emissions (gas emissions, emissions to air and to water).

Category description	Unit	2016	2015	2014	2013	2012
<b>1. Energy</b>						
Electricity consumption	MWh	454 531	441 103*	401 187	460 558	574 530
of which by air separation plant	MWh	390 225	385 485*	346 582	397 508	514 340
Natural gas consumption	MWh	49 849	41 550	57 424	52 289	46 203
Consumption of other energy sources	MWh	5 350	1 294	821	28 784	13 122
<b>2. Water</b>						
Water source						
Ground water	m <sup>3</sup>	118 151	98 089	95 241	453 261	110 783
Municipal water	m <sup>3</sup>	690 477	769 425	781 587	527 093	1 108 359
Recycled water	m <sup>3</sup>	0	0	0	824	n/a
Total water consumption	m <sup>3</sup>	808 673	882 110*	840 818	979 665	1 237 170
of which industrial and process water	m <sup>3</sup>	410 738	688 310	593 458	697 265	961 101
of which drinking water	m <sup>3</sup>	383 029	182 114	247 360	282 401	276 069
<b>3. Resources and material</b>						
Raw materials and supplies	t	6 682	7 995	13 892	8 197	8 684
Packaging material	t	204.8	99	227	183	206
<b>4. Emissions</b>						
Direct greenhouse gas emissions (Scope 1)						
CO <sub>2</sub> emissions	t	10 276	8 633	11 987	1 741	9 731
Aprox transport fleet	t CO <sub>2</sub> e	24 008	24 172	24 998	26 120	26 800
Other greenhouse gases	t CO <sub>2</sub> e	27	290.90	360.36	498.55	Not reported
<b>Total Scope 1</b>	t	<b>34 311</b>	<b>33 096.50</b>	<b>37 345.46</b>	<b>43 660.03</b>	<b>36 531.70</b>
Indirect greenhouse gas emissions (Scope 2)						
CO <sub>2</sub> emissions	t	441 336	427 460*	354 544	441 396	554 896
of which by air separation plants	t	379 778	375 685*	345 636	382 830	497 748
<b>Total Scope 1 and 2</b>	t CO <sub>2</sub> e	<b>475 647</b>	<b>460 556*</b>	<b>391 890</b>	<b>485 056.56</b>	<b>591 428</b>
<b>5. Emissions to air</b>						
Emission of HFC	kg	27	203.46	360.36	383.50	n/a
<b>6. Emissions to water</b>						
Chemical oxygen demand (COD)	kg	3 179	14 662	16 126	24 065	n/a
Biochemical oxygen demand (BOD)	kg	1 064	6 461	6 301	6 766	n/a
Nitrates	kg	42	188	195	767	n/a
Phosphates	kg	8	90	27	250	n/a

\* Restatement

<sup>1</sup> Only sites that are required to be certified

# Safety, health, environment and quality supplementary report 2016 *continued*

Category description	Unit	2016	2015	2014	2013	2012
<b>7. Waste and recycling</b>						
Total waste	t	2 088	3 408*	3 723	4 078	3 891
Non-hazardous waste	t	1 384	1 749*	1 775	1 724	1 925
Hazardous waste	t	703	1 658*	1 948	2 354	1 965
Recycled waste	t	806	845*	729	6 149	1 198
Incineration waste	t	11.4	9.66	20	30	14
Landfill waste	t	988	2 434*	2 844	1 901	2 214
Other disposal methods	t	282	116.41	136	453	403
<b>8. Transport</b>						
Distance driven by Afrox transport fleet	per million km driven	26.5	26.7	27.6	28.6	29.6
Serious truck incident rate	per million km driven	0.11	0.23* <sup>1</sup>	0.00	0.07	0.13
<b>9. Certified sites</b>						
Sites certified to ISO 9001		100%	100%	100% <sup>2</sup>	100%	100%
Sites certified to ISO 14001		100%	100%	100% <sup>2</sup>	100%	100%
Sites certified to OHSAS 18001		100%	100%	100% <sup>2</sup>	100%	100%
<b>10. Environmental incidents</b>						
Environmental complaints		0	0	2	1	0
Reportable environmental incidents		0	0	0	1	2

## Occupational health and safety

Category description	Unit	2016	2015	2014	2013	2012
Workplace accidents with at least one day of absence (employees) rate	per million hours worked	1.28	1.11	0.86	1.42	2.26
Workplace accidents with at least one day of absence (contractors) rate	per million hours worked	2.70	0.63	0.36	2.61	25.08
Workplace accidents of employees with at least one day of absence	Number	7	7	6	11	21
Workplace accidents of contractors with at least one day of absence	Number	8	2	1	5	16
Working days lost due to industrial accidents (employees)	Number	60	61	132	135	560
Working days lost due to industrial accidents (employees) rate	per million hours worked	10.97	9.66	18.88	17.40	57.60
Fatal workplace accidents involving employees	Number	0	0	0	0	0
Fatal workplace accidents involving contractors	Number	0	0	0	0	0

\* Restatement

<sup>1</sup> In 2015 Afrox started recording all vehicle incidents and not just avoidable ones as in the past

<sup>2</sup> Only sites that are required by customers to be certified