SHU POWDERS

CORPORATE SUSTAINABILITY REPORT

2016

Contents

Introduction

Shu Powders produces various fine Cobalt powders for the global hard metals, diamond tools and battery industries. Shu Powders manufacturing site is located at Cato Ridge, near Durban, South Africa, since 2008.

This is Shu Powders' second Corporate Sustainability Report in South Africa. This report highlights our corporate sustainability performance in consecutive years - 2012, 2013, 2014, 2015, and 2016. Our reporting focuses on the health and safety, environmental, and social responsibilities critical to our key stakeholders including shareholders, customers, employees, local communities, governments, partners, and suppliers.

We are a reputable manufacturer – we are committed to continual improvement in safety, health and environmental performance. This is non-negotiable in our drive towards Zero Harm.

- We believe that all injuries and environmental incidents are preventable;
- The safety of our employees, visitors and contractors is a non-negotiable value;
- We are committed to the protection of the environment, including the prevention of pollution, and
- Leaders at all levels in the organization are role models in the management of safety and environmental matters.

Shu Powders affirms the central importance of sustainability for communities, in the present and the future, for the integrity of human beings, culture, society, economic wellbeing, environmental responsibility and the way of life of the people.

In October 2016, Jingmen GEM Co Ltd. became the leading shareholder in Shu Powders Ltd. GEM was founded in 2001 and is the first stock listed recycling company in China employing abut 6000 people in 12 circular economy industrial parks. The Jingmen plant is a certified national education centre for circular economy and open to the public. GEM's philosophy is "Limited Resources, Unlimited Recycling". GEM actively advocates "Urban Mining".

Facing the reality of limited resources and environmental degradation, GEM is eager to build larger recycling factories to reduce more wastes and recycle more resources. Shu Powders is GEM's first overseas investment and GEM is planning to build a China-Africa Circular Economy Industrial Park in Durban in a second step. GEM signed a Memorandum of Understanding with the local authorities, Trade and Investment Kwa Zulu Natal (TIKZN). This factory will also recycle Cobalt and Nickel residues for Shu Powders' customers.

GEM's Corporate Social Responsibility Report is available on line at www.gemchina.cn. This 4-star report was ranked 6th by the Shanghai and Shenzhen Stock Exchange. For more information see also pages 25 and 26.

Executive Summary

4

Shu Powders maintains an integrated management system based on ISO 9001 for Quality, ISO 14001 for Environment, and OHSAS 18001 for Health and Safety. Apart from the international standards, Shu Powders is a four-star company according to the NOSA star grading system in South Africa.

Shu Powders have got a vision for a dust- free work environment - to attain this goal, substantial investments in automated machinery have been made, this includes the automated feeding machinery, the automated packaging machine, and the state-of-the-art pneumatic powder transfer machinery which is waiting for installation. The combination of these technologies is aimed at reducing dust levels to below 0.1 mg/m^3. A move towards cleaner manufacturing will significantly reduce exposure of employees to dust; this will allow for the use of more comfortable paper dust masks rather than the current full face masks.

Shu Powders invests in its employees through extensive training programs exceeding 80 hours per employee and year. We are in a 'social contract' with the community we are part of – all our employees and many of our service providers are drawn from a small radius around our site giving us a greater sense of belonging with shared values, norms and meanings.

Shu Powders is sourcing its raw material in compliance with the Organization for Economic Co-operation and Development (OECD) guidelines. The two sources are Goro, New Caledonia (owner: Vale Inco) and Ambatovy, Madagascar (owner: Sherritt, Sumitomo, Kores). Shu Powders is not sourcing raw materials from Artisanal Mines in the DRC which are known to be involved in child labor.

Highlights	Previous priorities
• Reducing Cobalt dust between workstations by 50% • Reducing Cobalt in blood non-conformances by 66% • Increasing period free from Lost Time Injuries (LTI) by 300% • Reducing hazardous waste by 30% • Increasing NOSA grading from three to four stars. • Zero environmental complains and fines since the construction of the factory in 2008. • Zero major injuries or fatalities since 2008. • Increasing training per person by 25%. • Celebrating Mandela Day at a near-by orphanage.	• Reducing Cobalt dust through automation • Increasing the period free from Lost Time Injuries (LTI) from 133 days to 313 • Reducing hazardous waste • Increasing the period free from environmental fines from 3640 days to 4005 • Increasing NOSA grading from three to four stars.
Lowlights	**Priorities for 2017**
• One LTI in Nov 2016. An employee showed allergic reaction to NH3. • Neighbour "Total Gaz" wrongfully reported Shu Powders to the labor department. The DOL inspected Shu Powders and confirmed Shu's compliance.	• Reducing Cobalt dust through automation • Increasing the period free from Lost Time Injuries (LTI) from 33 days to 398 • Increasing the period free from environmental fines from 4005 days to 4370 • Increasing NOSA grading from four stars to five stars. • Upgrading ISO certification to the new "2015" standards. • HAZOP review for entire ammonia and gas system

Key Performance Indicators (KPI)

Health & Safety
Environmental
Social

5

Description	Targets / Limits		Year 4 Actual	Year 3 Actual	Year 2 Actual	Year 1 Actual	4 Year Trend
Bio monitoring (No. of Co in urine/blood non-conformances)	0		1	3	6	8	
Dust monitoring between work stations (mg/m^3)	<0.1*		0.01	0.02	0.08	1.11	
Dust monitoring at work stations (mg/m^3)	<10*		0.4	0.6	1.1	2.1	
Dust fall out – general ($mg/m^2/day$)	<1200*		22	135	97	64	
Dust fall out - Cobalt ($mg/m^2/mth$)	<2		0.2	1.3	0.8	1.1	
Lost time incidents (No.)	0		1	0	3	1	
Noise (dB)	<85*		78	81	83	83	
Water consumption (l/kg Co)	≦10		6.9	8.1	8.4	11.2	
Electricity consumption (kWh/kgCo)	≦7		6.8	7.3	7.0	7.9	
Fuel consumption (l/kg Co)	≦5		0.0	10.1	16.7	3.6	
Hazardous waste (g/kg Co)	≦30		38	55	52	55	
Environmental incidents & complaints (No.)	0 0		0 0	1 0	0 0	2 0	
Employment permanent (%) Employment temporary (%)	≧90 ≦10		100 0	100 0	90 10	55 45	
Training (hrs per employee)	≧60		84	67	57	13	
Contribution to community (% of EBITDA)	≧0.4		0.4	0.4	0.4	0	

(*) -referring to legal limits

Health and Safety

6

Bio-Monitoring

Bio-Monitoring of chemical exposure in the workplace is of critical importance in the assessment of health risk as an integral part of the company overall occupational health strategy. We consider biological monitoring as an important tool in the prevention of occupational diseases related to those exposed to chemicals on a regular basis. A complete medical programme is in place consisting of Entry, Annual, and Exit medicals for all employees – on contract and permanent. All the medicals consist of the following examinations:

- Physical examination
- Eye Test
- Audiometric Testing
- Chest X-ray
- Lung Function
- Cobalt in Urine and Blood samples

Fig 1 shows the annual non conformances since 2013. The threshold levels derived from international studies [Ref 1] is set to concentrations of 50 µg/g creatinine and 25 µg/l blood. The presence of Co in urine is an indication of short term exposure, while the presence of Co in blood indicates long term exposure. Fig.1 shows that the number of non-conformances is decreasing year on year from 8 in 2013 to 1 in 2016. This is accomplished by various efforts, which, among others, include engineering interventions, e.g., automation to reduce dust generation at work stations and to capture fugitive dust; PPE; Inspections; training and awareness.

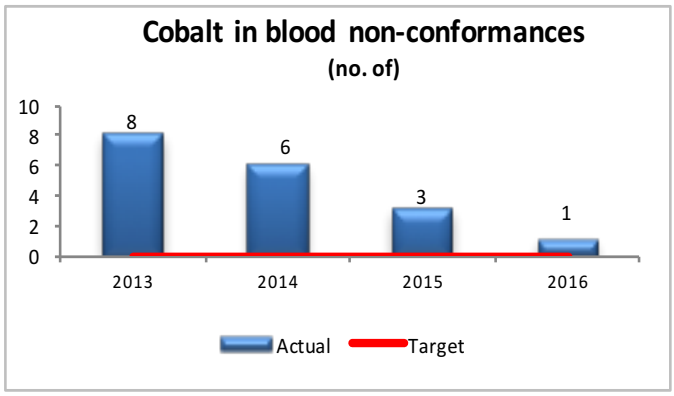


Fig 1. Cobalt in blood non-conformances: Number of non-conformances has decreased significantly year on year from 8 to 1.

Health and Safety

7

Occupational Hygiene Surveys

Every two years Shu Powders Africa engages an Approved Inspection authority (AIA) to conduct the following occupational hygiene surveys:

- Hazardous Chemical Substances Monitoring (HCSM),
- Hazardous Chemical Substances Risk Assessment (HCSR),
- Illumination,
- Noise, and
- Ventilation.

Dust Monitoring

Fig. 2 shows general dust levels in the plant between workstations. The levels have been brought down by factor hundred (x100) to a level of 0.01 mg/m^3, which is a factor ten (x10) below the legal threshold of 0.1mg/m^3. For comparison, the dust level at the admin office entrance is as low as 0.01 mg/M3. This is consistent with the trends in biomonitoring (Co in blood/urine) and dust fallout over the same period. Visitors can therefore enter the plant with a paper mask and do not require a full face mask as used by operators at work stations. These results has been accomplished over the past six years through many measures as reported in the previous sustainability report.

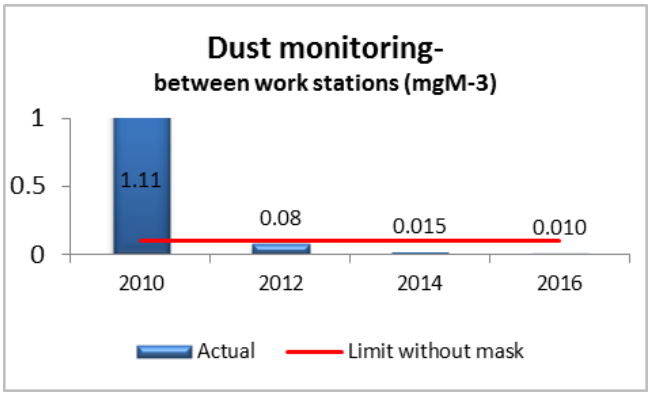


Fig 2: Dust Monitoring between Work Stations: Data from Apex Environmental, an Approved Inspection authority (AIA). The dust levels are decreasing incrementally year on year and they fall far below the legal limit of 0.1mg/m^3.

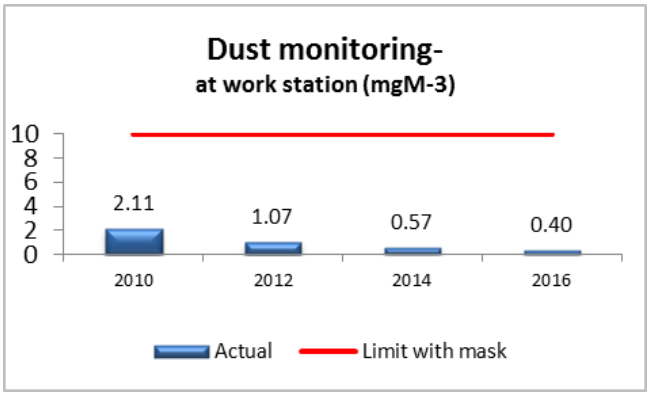


Fig 3: Dust Monitoring at Work Stations by APEX: The dust level at works is reducing year on year. The APEX hygiene surveys also found work stations with dust levels below detectable limits (BDL), e.g. milling.

APEX [Ref 2] also monitors the dust levels at various work stations. See Fig. 3 . The dust levels are occasionally higher at workstations as compared to the general level in the plant. They have been reduced gradually over the past four years to 0.4 mg/m^3 , which is still above the legal limit of 0.1. All operators are therefore protected by a full face mask fitted with particulate filters giving protection of a factor hundred (x100). The chart in Fig 3 therefore shows the limit with mask at 10 mg/m^3, factor x100 on 0.1 mg/m^3. All workstations are well below this limit.

Health and Safety

Dust Monitoring

Fig 4a: Dust detection device
Shu Powders installed a dust detection device for dust monitoring on a daily basis.

In addition to APEX, Shu Powders has invested in a dust monitoring device [REF 3], [Fig 4a] to monitor dust levels on a daily basis. The method employed is NIOSH 0500 – Particulates not Otherwise Regulated, Total, and shows a month's result in Fig 4b. Levels are well below limits for paper mask with a few exceptions. Fig 4c shows a correlation of dust near a work station and scrap being generated in that area. "Scrap" is synonymous to Cobalt powder that dropped to the floor or is filtered out in dust collectors. These materials can no longer be used as finished product. Hence, improved process control is key to continuous dust reduction.

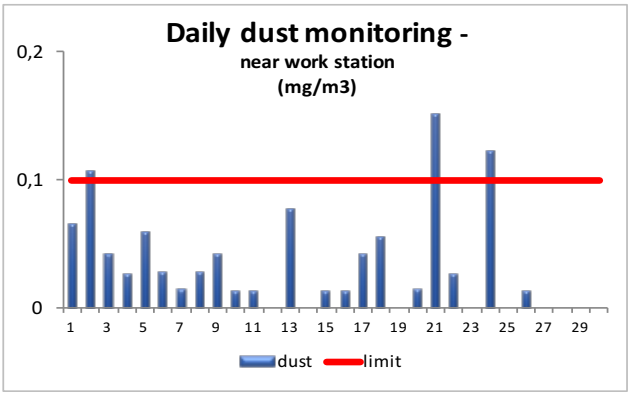


Fig 4b: Daily dust monitoring by Shu : Levels are well below limits for paper mask with a few exceptions.

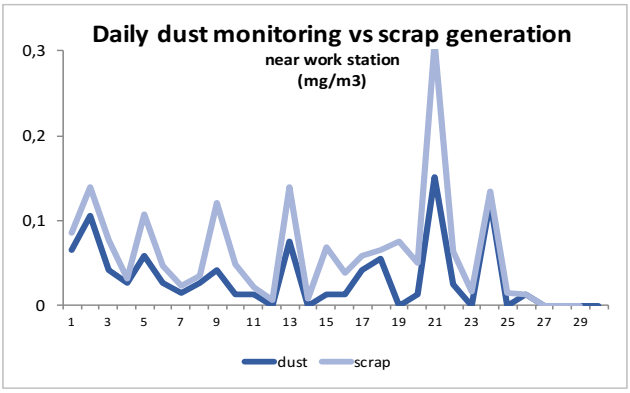


Fig 4c: Daily dust monitoring by Shu: Correlation between dust exposure and scrap generation.

Health and Safety

9

Dust Monitoring

As announced in the 2015 report, Shu Powders invested in new machinery to reduce the dust exposure for operators at certain work stations. Below photos show an automated furnace loading station and an automated packaging machine which have been installed in 2016. The ultimate goal is to reduce the dust levels at all work stations so that paper masks are sufficient for protection.

Fig 5a: Furnace loading – manual: Raw material was entered from 25 kg bags manually by the operator.

Fig 5b: Furnace loading - automated: Raw material is entered from 600 kg big bags automatically and without operator exposure now.

Fig 6a: Automated packaging machine: Finished product is filled into drums, automatically sealed and ready for palletizing.

Fig 6b: Automated drum filling station: Finished product is filled into drums with efficient dust collection and without operator exposure.

Health and Safety

10

Dust Fallout

There are 8 dust fallout collectors located at different locations along Shu Powders' fence line. The amount of dust collected (sample) is analysed gravimetrically to determine the amount of insoluble matter (dust). See Fig 7. This is done on a monthly basis by an external certified company. The amount of metal in the sample is thus determined. This is done according to ASTM D1739-94. This is a measure of the amount of dust Shu is releasing beyond its site boundaries. The recent results show a sharp decrease in the dust fall out.

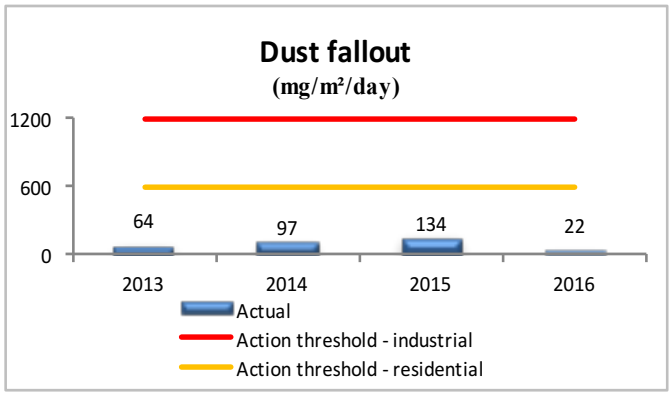


Fig 7: General Dust Fallout: Dust Fallout is well below the legal limits. The dust levels have dropped as construction work at neighboring sites is completed.

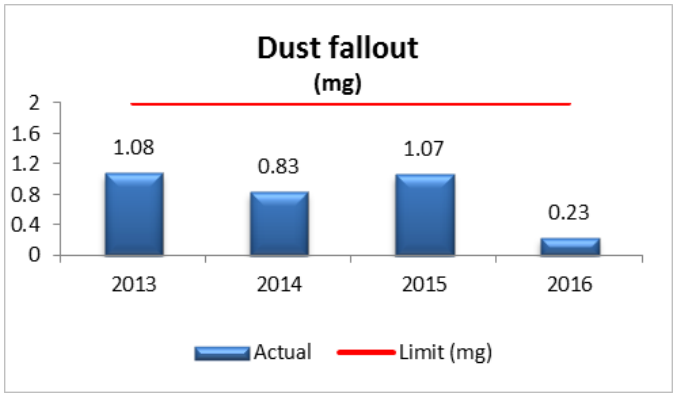


Fig 8: Cobalt in Dust Fallout: There is a big drop in Cobalt dust from 2015 to the current reporting period. The limit of 2 mg/m^2/day is self imposed.

The Cobalt content in the dust fall out samples is also measured. See Fig 8. There is a big drop of the exposure to the environment in 2016 compared to preceding years. This is a positive outlook and is a direct result of an array of dust reduction efforts mentioned in earlier paragraphs.

Since Shu Powders Africa obtained an Atmospheric Emission License (AEL) from the local authorities of Ethekwini Metropolitan Municipality in 2015, the dust fallout is sampled and analysed by ROHS Environmental Engineering, an external accredited company. The AEL requires the application of standard test method ASTM D1739:98 (2010).

Health and Safety

11

Risk Assessment

The top hazards and associated risks on site are related to Ammonia, Cobalt and Hydrogen. They are illustrated in the Shu Powders risk profile as follows:

Hazard	Safety	Health	Environment
Ammonia			
Cobalt dust	None		
Hydrogen		None	None

- Ammonia is toxic to people and environment. Vessels are under pressure.
- Cobalt dust can be harmful to people and the environment
- Hydrogen gas is explosive

All risks are addressed in management programs which get audited by external companies annually.

The Emergency Plan has been reviewed for adequacy against the risk profile. For example, special effort as been put into rearranging the ammonia emergency equipment for easy access. Gas safe rooms have been established. A HAZOP review (hazard and operability) for the entire ammonia- and gas supply system is underway for 2017.

Fig 9 a,b : Air supply cylinders for ammonia emergency alarm teams have been refurbished and prepared for easy access.

Health and Safety

Fig 10, Water Tank: Shu Powders' new water tanks makes it self sufficient for a month in case of water shedding, experienced in 2016.

Emergency water and fire water:
In 2016, South Africa experienced a drought which was the worst in 25 years. As a result, the entire country suffered from water shedding and water restrictions. Shu Powders has therefore installed a 137 m^3 water tank on its premises that makes its operations self sufficient for a month.

In addition, rain water is recovered throughout the plant. This rainwater is feeding Shu's ponds for cooling water.

Lost Time Incidents

Shu Powders is committed to the health and safety of its employees, visitors and contractors, this includes the protection of the environment and the prevention of pollution, and the protection of property against damage. The target for SHEQ incidences is Zero. This commitment is demonstrated by various ways among them, leading by example, formal training given to employees; awareness through tool box talks, posters, the safety day. For every incident which occurs, a Root Cause Analysis is carried out to find a lasting solution to the incident.

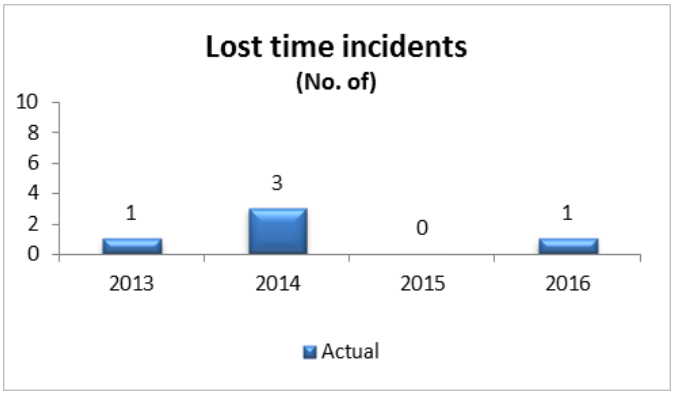


Fig 11, LTI: An employee reacted to traces of Ammonia gas. A root cause analysis was conducted and a corrective and preventive measures were put in place. LTI target is zero.

Lost Time Incidents since 2013:
In 2016, Shu Powders started monitoring the number of days free from lost time injuries as one of the indicators of SHE performance.

- On 28 November an employee experienced some eye irritation. He was taken to a medical Doctor and the Doctor confirmed that the employee was alleged to Ammonia vapour. The employee was booked off-sick for a single day.
- The period free from LTI in Nov 2016 was 723 days, which is almost 2 years.

Health and Safety

13

Noise

As mentioned on page 7, the two-yearly hygiene surveys conducted by an Approved Inspection Authority, Apex, include occupational noise monitoring. The legal limit for occupational noise is 85dB in South Africa. Noise levels inside the plant where employees perform work have got an average of 78dB, the maximum level recorded being 81dB.
Exceedances occur in designated noise zones and some designated noisy processes. The designated noisy zones are low activity areas where non-routine work takes place. In addition to training and awareness, signage requiring the use of hearing protection is prominently displayed on entrances to buildings where noisy activities take place.

The reduction of noise levels is due to the use of a new granulator motor coupled with a sound preventive maintenance programme.

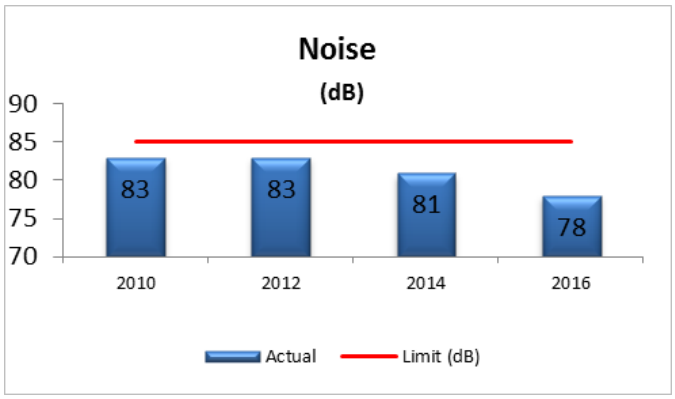


Fig 12, Noise: The results of the noise survey indicate a progressive reduction in noise levels in successive two-year cycles.

Environmental

Water consumption

The importance of saving water cannot be over emphasised, South Africa faces significant water challenges due to the combination of its rapidly growing population and increasingly unreliable rainfall patterns due to climate change. The water problem is further exacerbated by the fact that South Africa is a relatively dry country, with an average annual rainfall of about 464mm (compared to a world average of about 860mm).

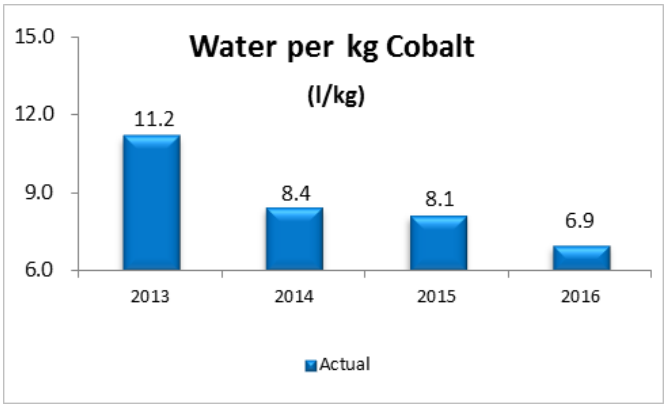


Fig 13, Water consumption: The water consumption has reduced thanks to more efficient use of both cooling water and rain water.

Shu Powders has managed to cut water consumption per kg of Cobalt produced 8.1 to 6.9, thus a 17% reduction.

Shu Powders also practices water harvesting. This is achieved by six installed JoJo tanks. This water has become the sole supply for the closed loop water cooling system for the plant. The harvested water is also used for laundry and gardening purposes.

Electricity consumption

The year 2016 recorded the lowest electricity consumption per kg cobalt produced since 2013. This is attributed to mainly to SHU9 - a Lean project aimed at exploiting the '*opportunity to reduce conversion costs by reducing energy cost & consumption through improved process control, better demand management, power factor correction*'.

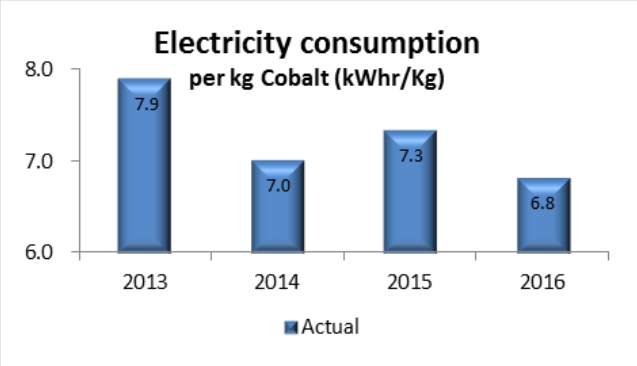


Fig 14, Electricity consumption: The electricity consumption was reduced by 7% from 2015 to 2016.

The Lean project had four major levers and was a big success:

Lever 1: Energy efficiency

Lever 2: Power factor correction to 2%

Lever 3: Review of the Eskom service contract

Lever 4: Management of peak / non-peak energy consumption

Environmental

Fuel consumption

Diesel fuel is used as an alternative energy source to power a stand-by generator due to persistent load shading on the national electricity grid. The year 2016 had no load shedding hence the standby generator was not used.

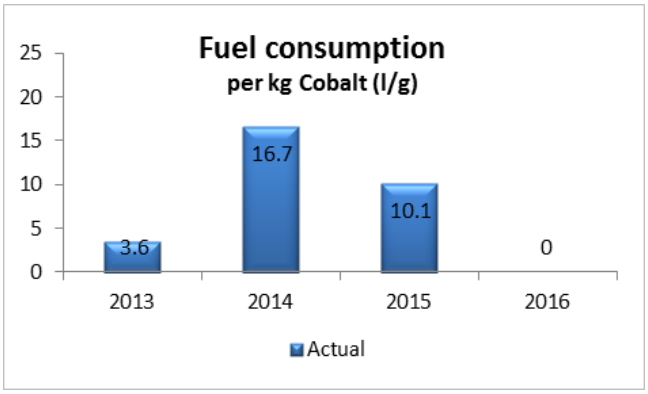


Fig 15, Fuel consumption: There was no diesel fuel used in 2016.

Note: The South African government is investing in more power stations (conventional, nuclear and renewable energy) in order meet the energy requirements of the future.

Hazardous Waste

The recycling of pallets has contributed to a 38% reduction in waste going to the landfill. Before, all raw material pallets used to be dumped into the hazardous skip as hazardous waste and collected for the landfill. Now, the used pallets are being washed and sold to a pallet manufacturer – samples are collected and tested for residual cobalt, this is to validate the effectiveness of the washing process. The pallets are washed clean.

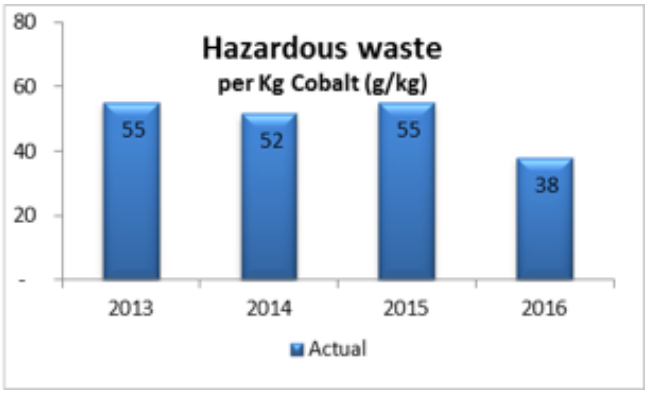


Fig 16, Hazardous waste: The SHEQ department is ever exploring on further opportunities to recycle.

Environmental

Incidents and Complains

Shu Powders has a track record of zero environmental fines or complaints from authorities, neighbours or the local community. Nevertheless, there are minor environmental incidents to report. The overall trend is positive.
Shu Powders has also obtained an AEL license (Atmospheric Emission License) for its reduction furnaces. The site is also licensed as a major hazardous installation (MHI) due to its ammonia cracking plant. Both are under strict control of the local authorities (Ethekwini Municipality). The MHI renewal process was successfully completed in 2016 and is valid for 5 years.

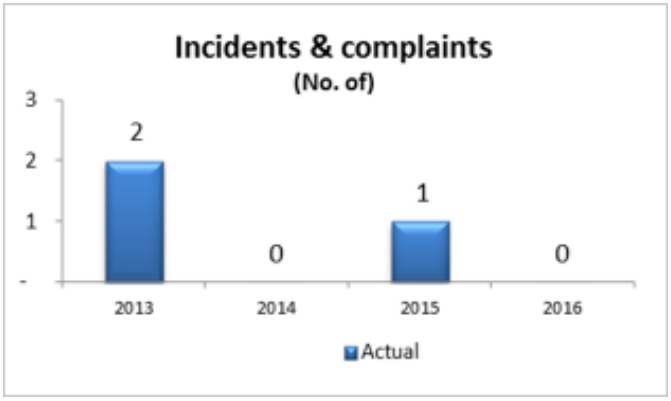


Fig 17, Incidents and complaints: The overall trend is positive as there was no complaint in 2016.

Incidents:

- 2016 – there was no environmental incident or complaint.
- 2015 - Jun, a valve on the ammonia surge tank was mistakenly open leading to the release of some ammonia vapour.
- 2014 - no environmental incidents.
- 2013 – Dec, the lab conservancy tank was full and as a result the drains were filling up. 5000 Litres of the contents were pumped into a bulk plastic tank. The liquid effluent was eventually collected by an accredited waste removal company.
- 2013 – Feb, a maintenance operator was decanting used oil into a 210 Litre drum and spilled a small amount of oil which ran along the storm water drain. The oil was later cleaned and Corrective and Preventive Action plan was implemented.

Corrective and Preventative Action Reports were raised for each incident.

Social

Employment

The total workforce has stabilized at 46 permanent employees. There were seven trainees in 2016 from different levels in their studies. The compensation of trainees can be subsidized to 100% in certain cases. Shu Powders will continue to provide opportunities for training to young technicians, engineers or scientists.

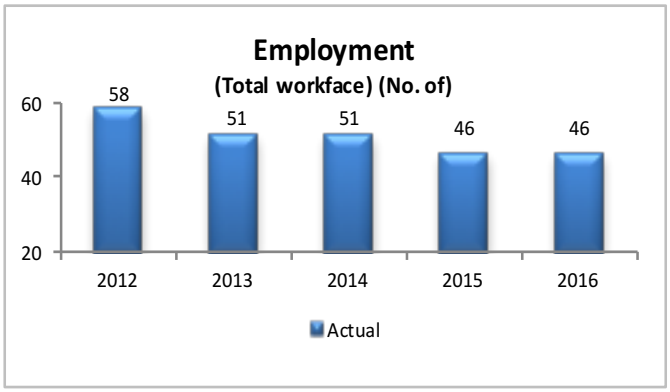


Fig 18, Total workforce: The total workforce has decreased thanks to efficiency programs assuring the viability of the overall business.

Also, there is occasionally casual labour on a short term contacts to assist in special projects. These people are also recruited from the local community and not from a labour broker.

Shu Powders concluded a two year labour peace agreement with the union NUMSA.

Further automation to reduce dust will reduce the amount of manual labor in the future. However, maintaining and servicing the new machines will create higher skilled jobs in return.

Shu Powders has progressively moved towards achieving 100% permanent employment to core staff. This is to give our employees a measure of job security, long term prospects and stability. This already has brought a significant sense of belongingness and alignment to the organization's goals and values among all stakeholders.

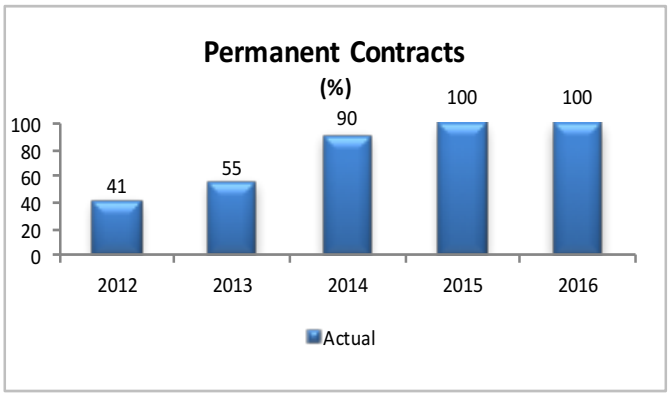


Fig 19a, Employment full time: The share of permanent positions has been increased step by step to 100% in 2015

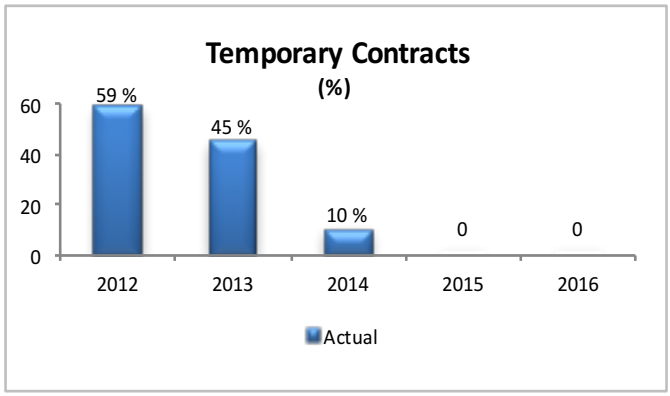


Fig 19b, Employment contract: The share of temporary positions has been decreased step by step and vanished in 2015.

Social

Training

Training of staff and management plays a vital role in the continuous improvement process of a learning organisation. Training has increased year on year from 2013. This illustrates the company's commitment to uplift the skills and knowledge of its workforce in order to fully benefit from employee empowerment and engagement. The training comprises health and safety, skills related to the respective job function, interpersonal skills and lean. The training requirements are derived from an individual skill gap analysis.

Continuous training and awareness is also done through toolbox talks, signage, posters. This training covers the company's risk profile – the top three hazards and associated risks.

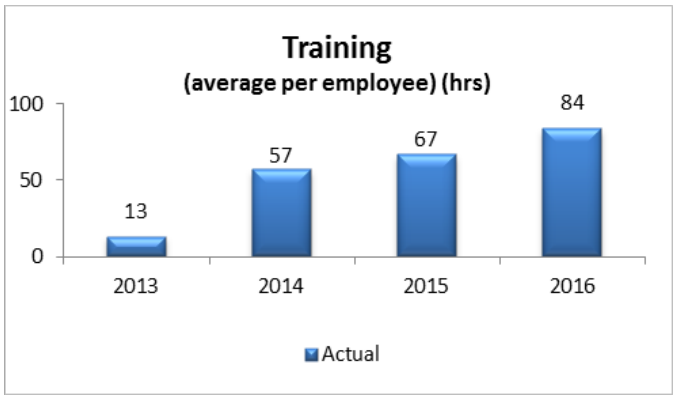


Fig 20, Training: Training is increasing over the past years. Meanwhile, every employee enjoys on average 84 hours of training per year.

Social

Contribution to the local community

We are in a 'social contract' with the community we are part of – all our employees are drawn from a small radius around our site giving us a greater sense of belonging with shared values, norms and meanings.

On the 18th of July, as a way of honouring the selfless life of Nelson Mandela, the entire Shu Powders staff took the opportunity to make a small gesture of solidarity with humanity and a step towards a global movement for good. The Shu Powders staff went on a community service trip – helped an orphanage home, Siyabusiswa, on the outskirts of Hillcrest. The donations included bedding linen, toys, and clothes. Work was also done to construct racking and shelving, in the garden, tap water and flooring.

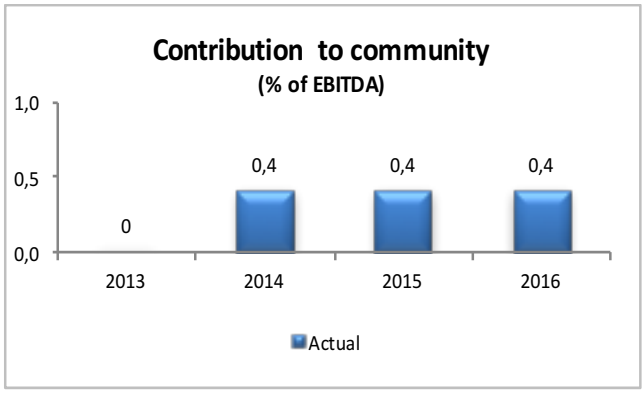


Fig 21, Contribution to the community : Shu's contribution to the community is increasing as earnings are increasing.

Fig 22a, Shu donated bedding linen.

Fig, 22b. Orphanage children with Shu Powders staff celebrating Mandela Day.

Fig, 22c. Orphanage children engaging in the traditional Zulu dance.

Social

Fig. 22d. Signage showing direction to the orphanage home.

Fig. 22e. Shu Powders staff proceed to the orphanage home.

Fig, 22f. Work on the garden and water pipeline.

Fig, 22g. Work on the bathrooms

Social

Corporate Values

Shu Powders management and staff developed four core values that determine how we work and life at Shu Powders. The first letters of our values form our name **SHU P**owders. Below describes the corporate values in detail.

S -Sustainability

H-Honouring Commitment

U-Undertaking

P-People

Sustainability

- We conduct our business in a sustainable and responsible manner, complying with relevant legislation.
- We operate effectively in a challenging global market.
- Health and Safety is paramount in our practise.
- We act in an environmentally responsible manner.

Honouring Commitment

- We are accountable for our actions and take pride in our work
- We believe in maintaining ethical and healthy relationships along the entire supply chain.
- We are committed to results and believe in keeping our promises.

Social

Undertaking

- We strive to exceed our customers' expectations to increase their competitiveness.
- We are passionate about the Quality of our Product, and making it Number 1 in the Cobalt market.
- We constantly search for a new way of thinking to continuously improve processes.
- We believe in teamwork to realize our goals.

People

- We value the diversity of our people.
- We Pursue growth and Learning
- We are committed to the development of the Communities where our employee's live and work.

Raw Material Sourcing

DR Congo issues

On January 19, 2016, Amnesty International published a report titled "This is What We Die For", outlining allegations against companies directly involved in the trade of cobalt sourced from artisanal mining as well as against some of the world's largest technology firms down the supply chain. [Ref 4] In the report Amnesty documents human rights abuses in DRC's artisanal cobalt mining sector such as child labour and hazardous and unhealthy working conditions (Fig 23). In the report Amnesty calls upon the DRC government to regularize unauthorized mining areas and provide safety equipment to artisanal miners. At the same time calls upon states to legally require companies to conduct human rights due diligence on their mineral supply chains and to report these publicly. The ramifications of this report are expected to be far reaching, Impacting the entire cobalt supply chain and resulting in greater supply line scrutiny on traceability, possibly the introduction of regulations for the artisanal mining sector in the DRC and the down stream use of its products.

Fig 23, Amnesty International Report: A video clip is available under http://youtu.be/7x4ASxHlrE

Note:

- On March 29, 2016, the London Metal Bulletin published articles stating that China's refineries imported almost a quarter of million tonnes of cobalt concentrate from the DRC in 2015, according to China import statistics. [Ref 5]
- These concentrates have been produced in dangerous conditions or by children in artisanal mines in the DRC.
- Six companies from China have been identified to import at total of over 10000 MT of cobalt concentrate in 2016.
- Among these six companies is the cobalt powder producer Nanjing Hanrui.
- Meanwhile, NGO's are paying more and more attention to Cobalt. (http://news.sky.com/story/meet-dorsen-8-who-mines-cobalt-to-make-your-smartphone-work) The rapid price rise has made it all the more important.

Shu Powders is not consuming cobalt units from the DRC. All raw material is coming from two sources outside DRC as outlined in the following paragraph. Following the GEM investment, Shu Powders will start sourcing Cobalt through GEM in 2017. GEM's Cobalt is largely coming from recycling or Glencore's mines and refineries which are all OECD compliant.

Raw Material Sourcing

Shu Powders' Raw Material Sources - Mines

In 2016, Shu Powders continuous sourcing all its raw material through Specialty Metals Resources (SMR) www.smr.hk SMR has annual contracts and multiyear off-take agreements with the Cobalt miner and refiner below.

1. Goro in New Caledonia (Fig 24a) is owned and operated by Vale INCO www.vale.nc. Vale INCO produces a Cobalt Carbonate.
2. Ambatovy in Madagascar (Fig 24b) is owned and operated by a consortium of Sherritt, Sumitomo and Kores www.ambatovy.com Ambatovy produces Cobalt briquettes.

Both mines are Nickel mines where Cobalt is produced as a by-product in the range of several thousand tonnes per annum. Both companies are stock listed and compliant with OECD guidelines. There are detailed sustainability reports issued by both companies. (Fig 24c,d)

Fig 24a, Goro: The facilities in New Caledonia are owned and operated by Vale INCO.

Fig 24b, Ambatovy: The facilities in Madagascar are owned by Sherritt, Sumitomo, Kores.

Fig 24c, Goro: Vale INCO issues a sustainability report every year, which is available on-line.

Fig 24d, Ambatovy: A sustainability report is issued every year and readily available on-line.

Raw Material Sourcing

Shu Powders' Raw Material Sources - Recycling

GEM Co., Ltd. was founded end 2001. In 2010, GEM was successfully listed in Shenzhen Stock Exchange (stock code 002340), with about 6000 fulltime employees, and more than RMB 8 billion annual sales. GEM was granted the National Circular Economy Pilot Enterprise, the National Circular Economy Education Base, the National Urban Mining Demonstration Base, the support organization of National WEEE Recycling Engineering Research Center. GEM became one of the practitioner and pioneer in leading China's circular economy and green industry.

In 2003, GEM initiated the business philosophy of "Limited Resources, Unlimited Recycling". GEM actively advocated "Urban Mining" of used batteries, WEEE and ELV. GEM obtained over 530 patents and formulated more than 100 national and industrial standards. GEM had built 12 recycling industrial parks throughout China, taking used batteries and waste rare metals recycling, WEEE recycling and ELV recycling as the three main businesses. GEM annually recycled more than two hundred tons of waste resources, recycled cobalt, nickel, copper, tungsten, gold, silver, palladium, rhodium, superfine powder, new energy battery materials and WPC etc., which formed a most completed recycling industry chain of rare metals in China.

In 2015, GEM annually recovers more than 300 thousand tons of used batteries and scrap cobalt and nickel. GEM exceeds 8.5 million sets of waste appliances, 2500 tons of tungsten resources and more than 4000 tons of nickel resources. The recycled cobalt resources exceed the amount of China's cobalt exploitation. GEM produces ultrafine cobalt and nickel powder accounts from recycled material for more than 50% of the domestic market. GEM also manufactures new energy battery materials of more than 13 thousand tons.

Fig 25, GEM Sustainability Report: A corporate sustainability report is issued every year, which is available on-line at www.gemchina.cn

Fig 26, GEM Corporate Culture: GEM's mission, vision, values and philosophy are clearly communicated throughout the group.

Raw Material Sourcing

Shu Powders' Raw Material Sources - Recycling

Following the investment in Shu Powders Africa in Oct 2016, GEM signed a Memorandum of Understanding (MOU) with Trade and Investment of Kwa Zulu Natal (TIKZN) in Dec 2016. TIKZN represents the local government of KZN South Africa. GEM is planning to build a China-Africa Circular Economy Industrial Park in Durban. www.gemchina.cn/en/html/2016-12-26/313_4543.html

This recycling park will also be able to treat Cobalt and Nickel containing residues from hard metal scrap recycling – a service that Shu Powders Africa will be able to offer on a large scale in the future. See extract of MOU below.

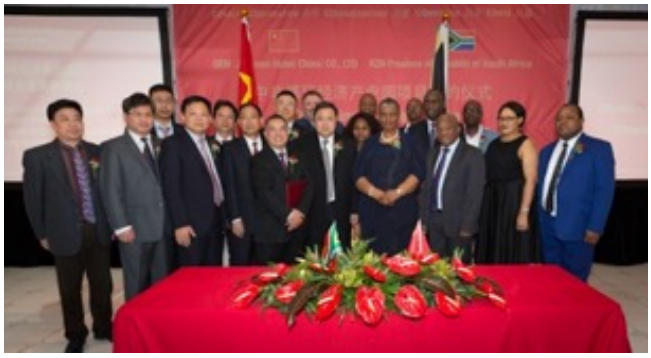


Fig 27a, MOU: Signing ceremony with many guests:
Mayor of Durban: Zandile Gumede,
Minister of Economic Development KZN: Shile Zikalala.
Vice governor of the Hubei province: Xu Kezhen.
Representatives from Durban and KZN authorities and a delegation of 12 representatives from Hubei, China.

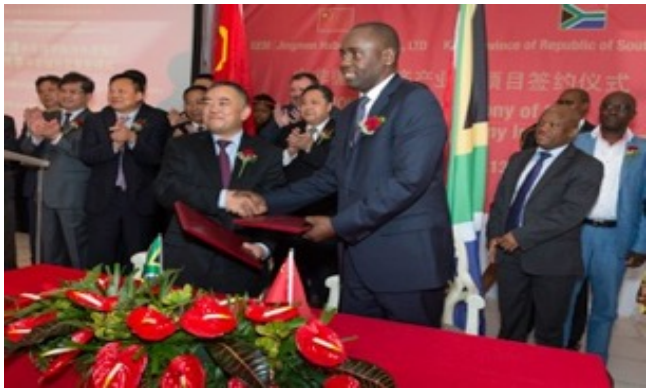


Fig 27b, MOU: Exchange of documents and shake hands between Zamu Gwala, managing director or TIKZN and Dr. Kaihua Xu, president of the GEM group.

Memorandum of Understanding of
China-Africa Circular Economy Industrial Park Project
KwaZulu-Natal, Republic of South Africa
&
Jingmen GEM CO.,LTD

…///…

Project Name: China-Africa Circular Economy Industrial Park
Investment Location: KwaZulu-Natal
Investment Amount: US $ 112 million
Area of the Industrial Park: covers an area of 390,000 m^2
Project Content: Facing to the world, with a total investment of US $ 112 million, equipped with advanced technologies and facilities, the principle of the China-Africa Circular Economy Industrial Park is clean product and environmental protection. Its core businesses include clean production and sustainable waste management. It is designed for four core industrial chains, including recovery of 12,000 tons of cobalt and nickel materials (50% of which are scrap raw materials) for traction batteries, recycling and reusing 150,000 tons of electronic waste (scrap metals included); recycling of 50,000 end-of-life vehicles, and recovery and reusing 1000 tons of waste tungsten material every year. An associated environmental management engineering project and utilities project (i.e. waste, gas, and electricity supply) will be built. Therefore, based on this world's leading circular economy industrial park, a typical mode of sustainable waste management and a role model for China-Africa circular economy development can be developed.

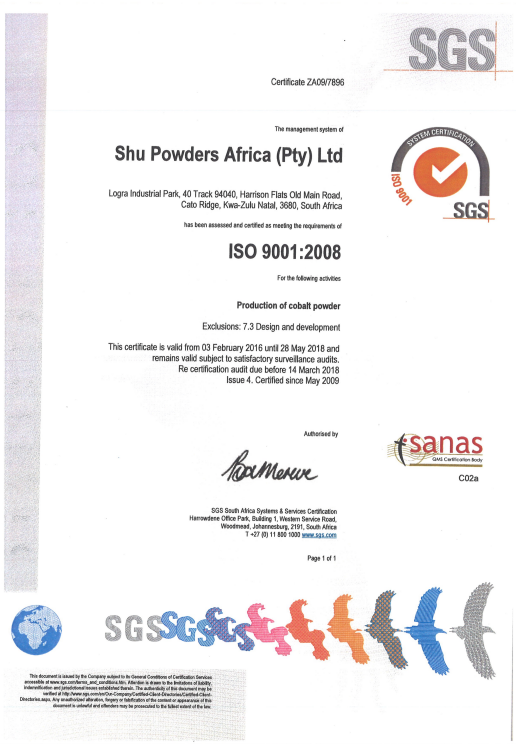
…///…

Certifications

Shu Powders holds ISO 9001:2008, ISO 14001:2004, and OHSAS 18001:2007 international standards. On top of these we also hold Four Stars on the NOSA Integrated Five Star System, CMB253N Standard.

These Integrated Management Systems give guarantee and confidence to our customers, employees, suppliers, the community and all other stakeholders on the quality of the product, the preservation of their health and safety, care for the environment and sustainable business.

Certifications



SGS

Certificate ZA09/7896

The management system of

Shu Powders Africa (Pty) Ltd

Logra Industrial Park, 40 Track 94040, Harrison Flats, Old Main Road, Cato Ridge, Kwa-Zulu Natal, 3680, South Africa

has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

Production of cobalt powder

Exclusions: 7.3 Design and development

This certificate is valid from 03 February 2016 until 28 May 2018 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 14 March 2018
Issue 4. Certified since May 2009

Authorised by

sanas EMS Certification Body
C02a

SGS South Africa Systems & Services Certification
Harrowdene Office Park, Building 1, Western Service Road,
Woodmead, Johannesburg, 2191, South Africa
T +27 (0) 11 800 1000 www.sgs.com

Page 1 of 1

SGS

Certificate ZA09/7895

The management system of

Shu Powders Africa (Pty) Ltd

Logra Industrial Park, 40 Track 94040, Harrison Flats, Old Main Road, Cato Ridge, Kwa-Zulu Natal, 3680, South Africa

has been assessed and certified as meeting the requirements of

OHSAS 18001:2007

For the following activities

Production of cobalt powder

This certificate is valid from 03 February 2016 until 28 May 2018 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 14 March 2018
Issue 4. Certified since May 2009

Authorised by

SGS South Africa (Pty) Ltd. System & Service Certification
Harrowdene Office Park, Building 1, Western Service Road,
Woodmead, Johannesburg, 2191, South Africa
t +27 (0) 11 800 1000 www.sgs.com

Page 1 of 1

SGS

Certificate ZA09/7892

The management system of

Shu Powders Africa (Pty) Ltd

Logra Industrial Park, 40 Track 94040, Harrison Flats, Old Main Road, Cato Ridge, Kwa-Zulu Natal, 3680, South Africa

has been assessed and certified as meeting the requirements of

ISO 14001:2004

For the following activities

Production of cobalt powder

This certificate is valid from 03 February 2016 until 28 May 2018 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 14 March 2018
Issue 4. Certified since May 2009

Authorised by

sanas EMS Certification Body
C04

SGS South Africa Systems & Services Certification
Harrowdene Office Park, Building 1, Western Service Road,
Woodmead, Johannesburg, 2191, South Africa
t +27 (0) 11 800 1000 www.sgs.com

Page 1 of 1

NOSA

★★★★★

GRADING AUDIT

This is to certify that

SHU POWDERS (PTY) LTD

has been assessed by NOSA against the provisions of the

NOSA INTEGRATED FIVE STAR SYSTEM

Occupational Safety, Health and Environmental Management

The Star Rating above and the Seal below, were hereto affixed in the presence of:

Manager

Certificate No: CA403834

Date: 30 – 31 March & 01 April 2016

Valid until: 29 March 2017

NOSA

CMC169

Certifications

ETHEKWINI MUNICIPALITY

ETHEKWINI METROPOLITAN MUNICIPALITY

THE ATMOSPHERIC EMISSION LICENCE IN TERMS OF SECTION 40(1)(a) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT (ACT NO. 39 OF 2004), AS AMENDED

ATMOSPHERIC EMISSION LICENCE

SHUPOWDERS LIMITED

Is hereby authorized to conduct the following Section 21 Listed Activity as detailed in AEL092/W2 at, Logra Industrial Park, 40 Track 94040, Harrison Flats, Old Main Road, Cato Ridge, Durban

Listed Activity Authorised to be conducted:
Category 7, sub-Category:7.1 & 7.4

Validity Period: 1 November 2015 – 31 October 2016

Bruce Dale: BDale
EThekwini Municipality
Air Quality Officer
9 Archie Gumede Place, Durban 4001
Licence Number: AEL092/W2

Date: 21/10/2015.

Certifications

Health, Safety and Environmental Policy

SHU POWDERS T: +27 31 782 1061 F: +27 31 782 1160 W: www.shupowders.com

Shu Powders Africa PTY. LTD
Logra Industrial Park, No.40 Track 94040, Harrison Flats
Old Main Road, Cato Ridge, KwaZulu Natal 3680 South Africa
Postnet Suite 10015, Private Bag X7005, Hillcrest, 3650

Vat No: 4150236521 CK No: 2007/000865/07

SAFETY, HEALTH AND ENVIRONMENTAL POLICY

Shu Powders Africa is a reputable manufacturer of cobalt, and is committed to continual improvement in safety, health and environmental performance. This is non-negotiable in our drive towards Zero Harm.

- We believe that all injuries and environmental incidents are preventable;
- The safety of our employees, visitors and contractors and the prevention and minimization of any impact on the environment is a non-negotiable value;
- Leaders at all levels in the organization are role models in the management of safety and environmental matters;
- At-risk behaviours are not acceptable and are addressed when observed; and
- Excellent safety, health and environmental performance are recognized as good business practices.

To achieve our goal we are committed to:

- Meeting the requirements of applicable legislation;
- Operate in accordance with industry and customer codes of practice, and voluntary requirements to which we subscribe including group policies, agreements with regulators and communities; REACH; CDI (The Cobalt Development Institute); SABS1929: 2011; and NOSA CMB253N.
- Ensure controls are effective to prevent pollution;
- Educate and train, motivate and support our staff and suppliers in the application of this policy and associated procedures;
- Reduce consumption and wastage of materials through recovery, rework and recycling where possible;
- Continually improve our safety, health and environmental system and performance through monitoring, preventive action, education and training;
- Develop new business opportunities that provide a sustainable future
- Create a framework for setting and reviewing objectives and targets as stated in this policy

We therefore commit to being a socially responsible employer in the interests of the community, future generations, and all our other stakeholders.

Signature: _____ Date: Oct. 13, 2015

Managing Director

Rev. 6

Managing Director: Dr. Michael Oehlers

Certifications

Quality Policy

SHU POWDERS T: +27 31 782 1061 F: +27 31 782 1160 W: www.shupowders.com

Shu Powders Africa PTY. LTD
Logra Industrial Park, No.40 Track 94040, Harrison Flats
Old Main Road, Cato Ridge, KwaZulu Natal 3680 South Africa
Postnet Suite 10015, Private Bag X7005, Hillcrest, 3650

Vat No: 4150236521 CK No: 2007/000865/07

QUALITY POLICY

Shu Powders Africa is committed to establishing and maintaining ourselves as a quality manufacturer of cobalt. To achieve this goal we will totally satisfy our customers' requirements and expectations in the quality of product and service.

We are committed to establish, maintain and continually improve on a Quality Management System (QMS) that conforms to the ISO 9001:2008 requirements.

As Managing Director I undertake to ensure that our Quality Management System is thus directed towards achieving the following objectives:

- Only accepting orders and contracts within our managing capacity
- Planning all business activities and improving on the planned time allocations
- Employing and developing people who have the necessary skills and experience to improve our product and service
- Supporting and developing suppliers who are committed to Quality Improvement
- Reacting to problems quickly and systematically and fostering a team approach to problem solving
- Aiming to deliver on time; recognising that deadlines are a crucial part of our business
- Ensuring we comply with all applicable legal and statutory requirements that pertain to our product
- Create a framework for setting and reviewing objectives and targets as stated in this policy

The SHEQ Officer has been appointed as the Management Representative regarding all aspects of the ISO 9001:2008 Quality Management System

Signature: _____ Date: Oct. 13, 2015

Managing Director

Rev.7

Managing Director: Dr. Michael Oehlers

Glossary

- **Biological monitoring:**

The measurement and assessment of workplace agents or their metabolites either in tissues, secreta, excreta, expired air or any combination of these to evaluate exposure and health risk compared to an appropriate reference. All the medicals consist of the following examinations:

- Audiometric Testing
- Eye Test
- Chest X-ray
- Lung Function
- Physical exam
- Cobalt vs Creatinine (urine testing)
- Cobalt in Blood

- **ASTM D1739-94:**

The standard test method for collection and measurement of dustfall (settleable particulate matter).

- **Lost time incident:**

Lost time injury is when an employee gets injured in the course of his employment and is unable to perform the regular duties of a complete shift. None of Shu Powders' LTIs caused interruption in production or business.

- **Risk Assessment:**

The evaluation of the risks of existing substances or conditions to people and to the environment. This ensures better management of those risks.

Reference List

- [Ref 1] Concise International Chemical Assessment Document 69. Communication with Dr. Do Vale of CATOMED Clinique, in Cato Ridge, KZN, South Africa.
- [Ref 2] APEX study 2010, 2012, 2014, 2016
- [Ref 3] Dust detection device: SKC- Airchek sampler
- [Ref 4] Amnesty International Report, January 19,2016 www.amnesty.org/en/documents/afr62/3183/2016/en/
- [Ref 5] London Metal Bulletin Articles, March 29, 2016.