October 2025

Environmental Scoping Report

and

Management Plan

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PROJECT NAME	PROPOSED GEOCHEMICAL ANALYSIS LABORATORY OMARURU ON ERF 31 AND 32, C/O SKOOL AND SENDING STREETS OMARURU
ASSIGNMENT NAME	SCOPING REPORT AND ENVIRONMENTAL MANAGEMENT PLAN FOR THE PURPOSES OF AN ENVIRONMENTAL CLEARANCE CERTIFICATE APPLICATION
LISTED ACTIVITIES IN TERMS OF THE ENVIRONMENTAL MANAGEMENT REGULATIONS (2012)	"2.2 Any activity entailing a scheduled process referred to in the Atmospheric pollution prevention ordinance, 1976" "9.1 The manufacturing, storage, handling or processing of a hazardous substance as defined in the Hazardous Substance Ordinance, 1974" "2 The process or activity which requires a permit, licence, or other form of authorization or the modification of or change to existing facilities or any process or activity which required an amendment of an existing permit, licence or authorisation, or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste."
STAGE OF REPORT	Final
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DATE OF RELEASE	October 2025
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ENVIRONMENTAL ASSESSMENT PRACTITIONER DECLARATION

I hereby declare that I do/will:

(a) Have knowledge of and experience in conducting assessments, including knowledge of the Environmental Management Act (Act 7 of 2007) and the Regulations and Guidelines that have relevance to the proposed activity;

(b) Perform the work relating to the application in an objective manner, even if these results in views and findings that is not favourable to the applicant;

(c) Comply with the abovementioned Act, its Regulations, Guidelines and other applicable laws.

I also declare that there is, to my knowledge, no information in my possession that reasonably has or may have the potential of influencing –

(I) any decision to be taken with respect to the application in terms of the Act and its Regulations; or

(ii) The objectivity of this report, plan or document prepared in terms of the Act and its Regulations.

Stephanie van Zyl

Environmental Assessment Practitioner

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EXECUTIVE SUMMARY

MSALABS plan to develop a sample preparation and fire assay laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru. Enviro Dynamics is conducting the environmental impact assessment on their behalf, in order to apply for an Environmental Clearance Certificate. The laboratory will be receiving material samples from mines, for geochemical analysis for gold and silver using the fire assay method, the process which is described in this document.

In this Scoping Report and Environmental Management Plan, we present the main features of the facility, as they relate to the ecological and social environment, an overview of the environmental and legal requirements for the project, the consultation process undertaken to date, the potential significant impacts identified, all leading up to the environmental management plan for the operations.

The proposed project was circulated to the neighbouring properties, and the Municipality of Omaruru and was advertised in the local press as per the Regulations. One comment was received regarding the technology to be used. This is answered in the Consultation section with appendix.

The following have been identified as potential ecological and social impacts resulting from the project.

KEY IMPACTS IDENTIFIED DURING OPERATIONS
Water pollution from chemicals entering the waste water treatment system. Chemicals are to be removed from the municipal effluent stream and disposed of at an approved waste disposal site otherwise treated to meet effluent standards. If this is adhered to, the impact will be negligent.
Negative impact (contamination) on the Omaruru Waste Disposal Site and resulting soil and water pollution and health hazards. All waste contaminated with chemicals from the fire assay process should be disposed of separately, stored in containers on site and disposed of at an approved waste disposal site.

Impacts related to the handling and disposal of chemicals on site. Chemicals not handled and stored separately and safely according to MSDS and health and safety regulations, will result in leakages, spills, human exposure leading to health risks, and water and soil contamination. This can be prevented with proper chemicals handling and storage, as per regulations. MSALABS has a waste management plan that should be implemented.
Dust, noise and fumes causing discomfort and/or health issues at neighbouring sites. Extraction and ventilation is to be designed and implemented in the facility, to meet WHO, and Health and Safety Regulations exposure limits. Daily management and monitoring per health and safety regulations.
Health and Safety risk of Workforce, which can be managed to accepted standards by adhering to WHO and Health and Safety Regulations.
Job Creation, skills transfer and economic development . This positive impact can be enhanced by employing local labour, semi-skilled workers in order of percentage from Omaruru, the region, other regions, internationally. Females to be given equal opportunities.
Pressure on energy source as a result of energy intensive operations. Investigate supplementation from renewable sources and manage power usage through design, maintenance, and other management regimes.

1 INTRODUCTION

1.1 BACKGROUND

MSALABS plan to develop a sample preparation and fire assay laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru (Figure 1).

Figure 1: Locality of the proposed laboratory

The current buildings on the property will be converted for the laboratory purposes.

MSALABS appointed Enviro Dynamics to conduct an environmental impact assessment on their behalf, in order to apply for an Environmental Clearance Certificate. The laboratory will be receiving material samples from mines, for geochemical analysis for gold and silver using the fire assay method, the process which is further described in the next section of this document.

In this Scoping Report and Environmental Management Plan, we present the main features of the facility, as they relate to the ecological and social environment, an overview of the environmental and legal requirements for the project, the consultation process undertaken to date, the potential significant impacts identified, all leading up to the environmental management plan for the operations.

This document is hereby submitted as an application to the Department of Environmental Affairs for the issuing of an Environmental Clearance Certificate in terms of the Environmental Management Act and its Regulations (2012).

1.2 METHODOLOGY

Our methodology for the scoping study and management plan is as follows:

- Familiarisation with the proposed processes and how they may affect the ecological and social environments, using interviews with staff, and research on typical fire assay laboratories (Section 2)
- Conduct a screening exercise to identify all environmental and socially related legal requirements for the project (Section 3)
- Identify potential sensitivities and impacts related to the operations (Section 4)
- Consult with interested and affected parties to gain an understanding of their objections, issues and concerns (Section 5)
- Conduct an Impact Assessment to determine and describe the potential significance of each impact (Section 6)
- Compile an Environmental Management Plan for integration of mitigation measures into the operations of the plant (Section 7)

2 THE PROPOSED LABORATORY

2.1 WHO IS MSALABS?

MSALABS is an assay services company offering geochemical laboratory services tailored to our client's needs. They have a network of laboratory services globally and wish to extend these services to Namibia.[1] MSALABS has a local company, namely MSALABS Namibia.

2.2 WHAT DO MSALABS INTEND TO DO?

2.2.1 Construction Phase

The existing buildings will be converted into a geochemical laboratory. The construction process entails normal building activities and installation of the equipment. The normal building activities will have building and general waste, construction workforce operating on site, causing noise and disturbances in the neighbourhood for approximately 3 months. There will be a contractor appointed for the construction activities. Approximately 20 - 30 jobs will be created.

The proposed layout of the project is attached as Appendix B.

2.2.2 Operational Phase

The geochemical and fire analysis laboratory will be receiving material samples from mines, couriered or delivered to the site, for geochemical / fire analysis for gold and silver using the fire assay method. This process is more fully explained below.

[1] https://www.msalabs.com/services/photonassay

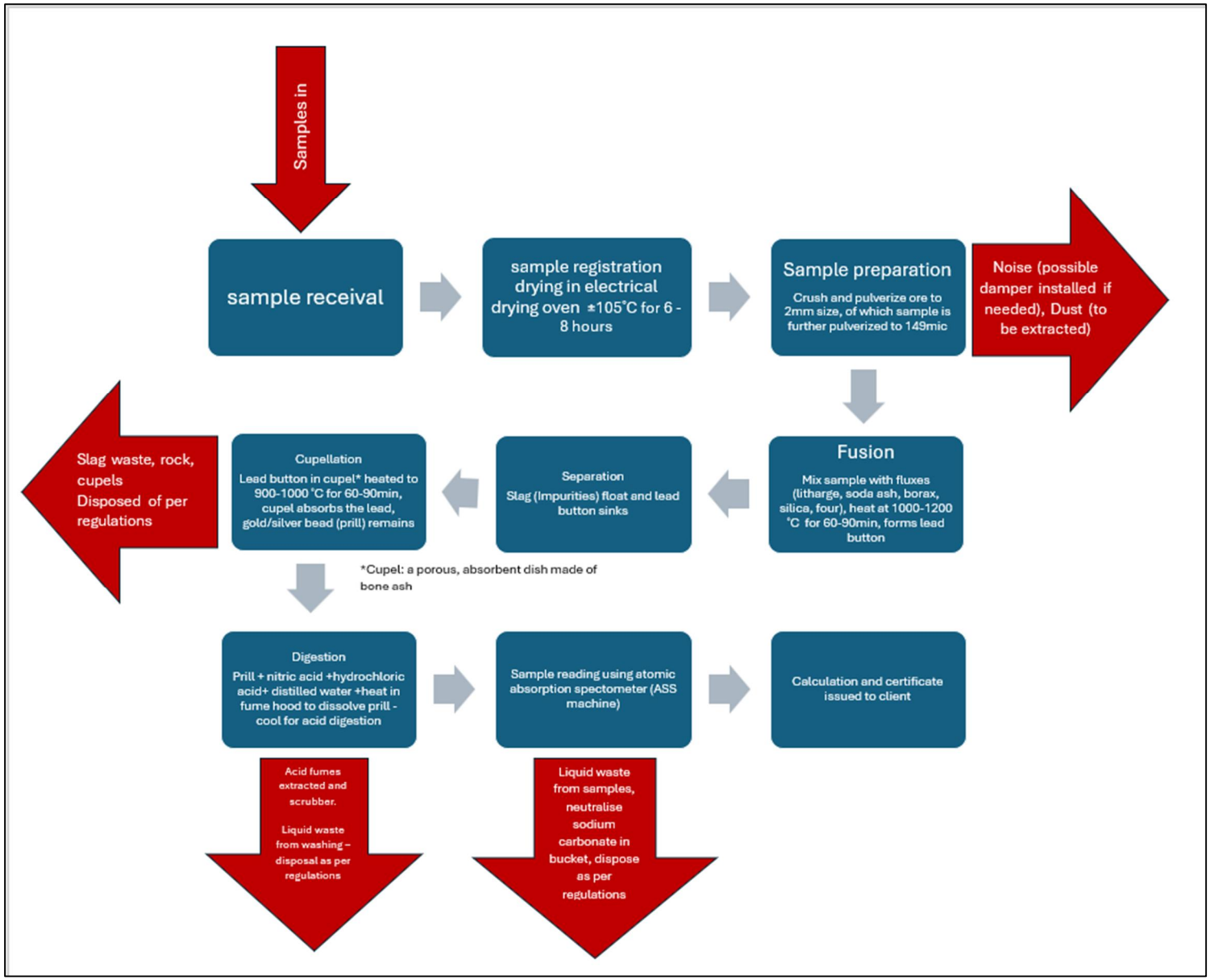


Figure 2: Proposed MSALABS sampling process

2.3 PROPOSED SAMPLING PROCESS

2.3.1 What Is Fire Assay?

Fire assay is a quantitative chemical analysis method that separates precious metals like gold and silver from impurities through high-temperature fusion and cupellation. The process concentrates the metals into a small, measurable bead, allowing for precise measurement.

2.3.2 The process explained

2.3.2.1 Sample receival: (Input)

- Sample submission by client to laboratory and sample receival by laboratory staff (Input) will be 3-7kg of samples (up to 80mm size) in calico bag
- Waste: No waste produced at this stage

2.3.2.2 Sample registration & Drying process: (Input)

- Register the sample using LIMS (Laboratory information Management system)
- Dry the sample in electrical drying oven at 105 Deg C (+/-5 Deg C) for about 6 to 8 hours.
- Waste: No waste produced at this stage

2.3.2.3 Sample Preparation

- Crush and pulverize ore (Crush the dried sample using Boyd crusher to 2mm size passing 80% and then using LM2 pulverizer sample need to be pulverized (250g of split to >90% passing 149 micron) – Product
- Some dust might generate during this process; it is planned to extract using dust extraction system & collected in a barrel for safe disposal. 10kg per day dust generation estimated.
- Waste generation: 3kilogram sample x 300 samples/day = 900kg of crushed rocks (2mm size) goes to bin for safe disposal
- Weigh representative sample (50 g in a fire clay crucible)

2.3.2.4 Fusion

- Mix sample with fluxes:
  - ü Litharge (PbO)
  - ü Soda ash
  - ü Borax
  - ü Silica
  - ü Flour
- Heat in crucible at ~1000–1200°C for about 60 -90 minutes
- Lead button forms (collects Au (gold) & Ag (silver))

2.3.2.5 Separation

- Slag (impurities) floats
- Lead button (with Au & Ag) sinks
- Waste: One crucible after the fusion process – daily about 300 crucibles (Likely to reuse to reduce the quantity to 150 per day) containing slag waste of 100g per sample x 300 samples = 30kg of slag per day estimated to be disposed as per local regulations after collecting it in a bin.

2.3.2.6 Cupellation

- Place lead button in cupel 7A
- Heat to ~900–1000°C for about 60 min to 90 min
- Lead oxidizes to PbO and is absorbed by cupel
- Gold-Silver bead (Prill) remains (Product)
- Waste: One cupel per sample x 300 = 300 cupels per day goes to the bin for safe disposal

2.3.2.7 Digestion

- Transfer the prill to 10ml test tube & add 1ml of nitric acid + 3ml of hydrochloric acid + 6ml of distilled water.
- Heat it on hot plate/water bath for about 20 min in a fume hood to dissolve the prill to solution. Acid fumes are extracted using a fan and scrubbing taking place in the scrubber.
- Cool the solution for 10min after acid digestion process
- Waste: Liquid waste generates from this section while washing test tubes etc. Estimated about 250L to 400L water per day for washing glassware, showering, basic domestic uses – Safely disposed as per local regulations.

2.3.2.8 AAS (Atomic Absorption spectrometer) reading the sample

- Once the solution is cooled – start the AAS machine, calibrate and analyse using the machine for gold and silver concentration in the given sample and report the results.
- Waste: Typically, 8ml per sample liquid waste x 300 samples per day = 2.4L per day from this AAS room liquid waste collected, neutralized using sodium carbonate in a bucket prior to safe disposal as per local regulations

2.3.2.9 Calculation

- Calculate Au and/or Ag content in original sample
- Report the results using LIMS & certificate to clients
- Maintain record

3 APPLICABLE LEGAL REQUIREMENTS FOR MAINTAINING ENVIRONMENTAL AND SOCIAL COMPLIANCE

Environmental issues and laws specific to geochemical laboratory testing in a town include the following:

- Solid waste, by-products and chemicals handling and disposal
- Wastewater treatment
- Emissions to air
- Resources consumption
- Health and safety regulations

This section includes a discussion on each of these, with reference to legal requirements in each case.

3.1 SOLID WASTE AND BY-PRODUCTS

Solid waste to be produced at the facility include:

- Construction waste including building rubble, contaminated soils, steel and wooden off-cuts, metal and plastic scraps, tile pieces, cement, plaint etc.
- Blackwater (sewage) and grey water (from washing facilities but excluding the laboratory process washing)
- Slagwaste, rock, cupels, sample liquid waste (neutralised)

REGULATIONS:WASTE

- ü General waste and construction waste regulated in terms of the local authorities act and under the jurisdiction of the Omaruru Municipality.
- ü Sewage and grey water regulation in terms of the local authorities act and under the jurisdiction of the Omaruru Municipality.
- ü There is no facility for the reception of slagwaste, and cupels, laboratory wash water in Omaruru. Hazardous waste disposal sites exist in Walvis Bay and Windhoek.

3.2 CHEMICALS CONTROL

There are various hazardous chemicals to be handled and stored on site, including:

- Litharge (PbO)
- Soda ash
- Borax
- Silica
- Lead

The material safety data sheet for each chemical, to show the risks of each, is attached as Appendix C.

REGULATIONS:CHEMICALS CONTROL

- The Health and Safety Regulations provide requirements for control of chemicals from an occupational health and safety perspective.
- Namibia does not possess legislation for chemicals and hazardous substances control from an environmental point of view (Hazardous Substances Act does not have regulations which specify particular hazardous substances).
- Local Authorities Fire Brigade Services Act No 5 Of 2006, regulations regarding the storage and use of hazardous chemicals
- The Health and Safety Regulations contain regulations for the handling of chemicals from a worker health point of view.

3.3 WASTEWATER

3.3.1 Industrial process wastewater

The proposal laboratory will not dispose of any industrial wastewater used in the sampling process, to the local sewage system. A permit is required for such a possibility and therefore it is important that the water used to clean tubes, for example, is not disposed of in the municipal sewage system, unless treated and a permit obtained for its disposal as such.

3.3.2 Other wastewater streams

This includes sanitary sewage and storm water. The sewage will be disposed of in the municipal sewage collection system. Storm water is handled according to the City of Omaruru Drainage Regulations. Storm water should not be contaminated with wastewater and hazardous materials from the site. A sump should be installed at the lower end of the property for the collection of oils and contaminated water. The liquids collected from the sumps should be collected and disposal of in a bin for collected by a waste collection service provider.

Maintenance of the above systems is important and this is included in the Environmental Management Plan (EMP) (See Section 7).

REGULATIONS:WASTE WATER

- ü Omaruru drainage regulations
- ü Omaruru sewage collection – Health regulations

3.4 WATER AND ENERGY CONSUMPTION

Approximately 250 ℓ to 400 ℓ of water is to be consumed per day (per month). This is normal volumes and in line with domestic consumption patterns.

Approximately 94,320kwh (at 12 hours per day operation considered) of electricity will be consumed per month. Significant amounts of energy is utilised in the heating process of the operations.

Energy efficiency targets could be made part of an Environmental Management System, which follows on from the Environmental Management Plan.

REGULATIONS:WATER AND ELECTRICITY CONSUMPTION

- ü Water tariffs are determined by Namwater and applied by the Omaruru Municipality. Water saving regulations may be introduced by the Omaruru Municipality.
- ü Electricity Tarriffs are determined by NamPower and applied by the Omaruru municipality
- ü Namibia is signatory to Framework Convention on Climate Change, 1992, Namibian Climate Change Strategy and Action Plan, 2011-2021

3.5 EMISSIONS TO AIR

Noise can be expected at the crusher. Acid fumes will result from the digestion process and silica dust from the crushing process. Lead dust may be generated while preparing the samples and lead fumes during fusion of samples.

REGULATIONS:AIR EMMESSIONS

- Atmospheric Pollution Prevention Act (Act No 45 of 1965) (APPA) (excluding ambient air standards)
- Air Quality Objectives adopted as part of the Erongo Strategic Environmental Assessment (SEA) (Based on the World Health Organisation (WHO) interim targets and South African National Ambient Air Quality Standards of 2009.)
- The World Bank Pollution Prevention and Abatement Handbook (1998) and the World Bank Group Environmental, Health, and Safety Guidelines (provides guidelines on ambient air quality and emission limits for specific processes and for individual pollutants.
- SANS Noise standards
- The above standards are background standards. Should the below standards be followed for worker health and safety, then the above standards are also expected to me met.

3.6 OCCUPATIONAL AND COMMUNITY HEALTH AND SAFETY

Health and safety issues revolve around the construction process which involves dust, noise, and working at heights. During the operation process involved noise, working with heat, and being exposed to and handling hazardous chemicals.

REGULATIONS:COMMUNITY AND WORKER HEALTH AND SAFETY

- Labour Act Nr 11 of 2007 in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work' regulate noise, heat exposure, construction safety, handling and exposure to chemicals, occupational exposure limits and PPE.
- MSALABS will require a factory permit from the Ministry of Health and Social Services who may inspect the premises from a health point of view.
- Community health and safety involved the potential inhalation of fumes, dust and noise.
- The Omaruru Municipality issues an annual fitness certificate which includes issues such as fire brigade requirements, building plans, zoning, and health requirements. The Omaruru Municipality may inspect the site to check compliance.

4 CURRENT BASELINE ECOLOGICAL AND SOCIAL CONDITIONS OF THE MSALABS SITE

Those ecological and socio-economic state of affairs that related to the proposed geochemical laboratory in Omaruru are described below.

4.1 METEOROLOGICAL AND HYDROLOGICAL CONDITIONS

The climate data below is typical for the Omarura area, as summarised from the Namibian Atlas data (Mendelsohn et. al, 2002) and

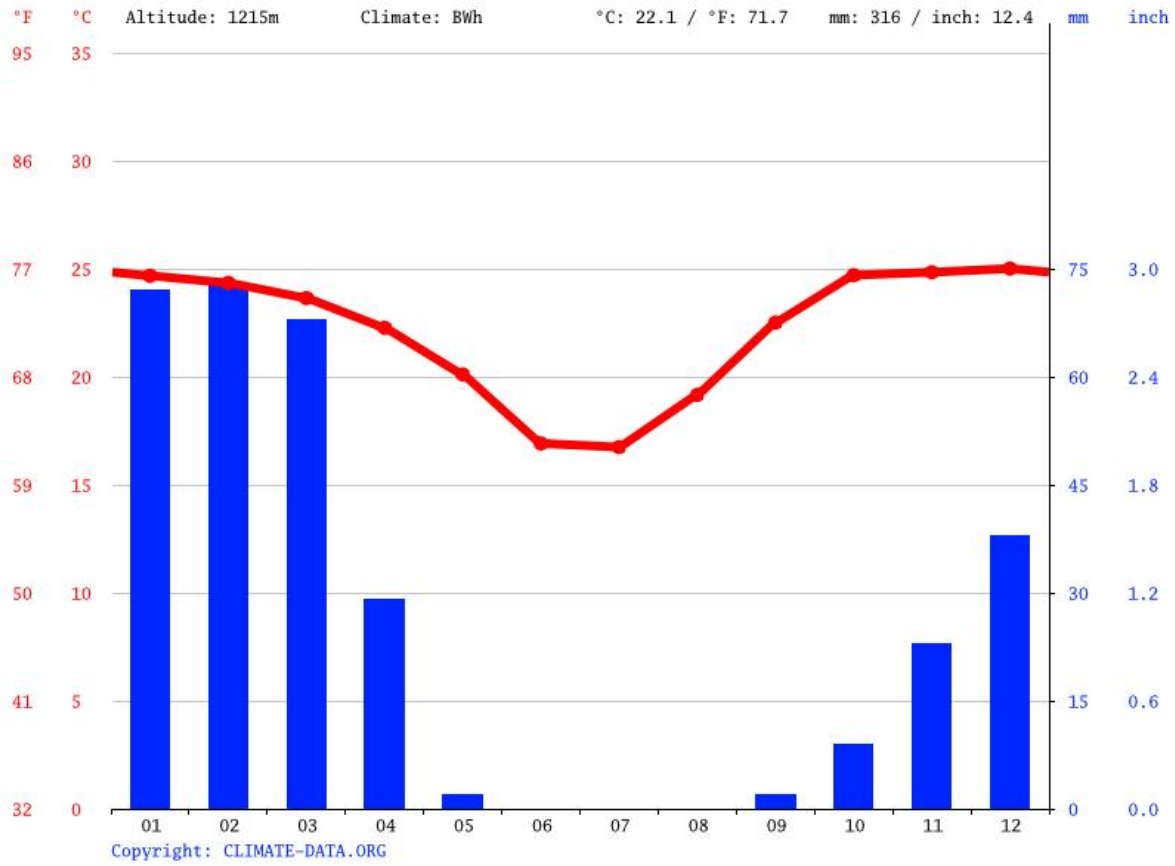


Figure 3: Climatograph for Omaruru[2]

[2] https://en.climate-data.org/africa/namibia/erongo-region/omaruru-3182/#climate-graph

Average rainfall (1991-2001): 316mm per year

Precipitation:	sporadic and unpredictable, high intensity, highly localised storm events between October and April.
Temperatures:	Highest temperatures are measured in October with an average daily maximum of 33.1°C and minimum of 16.2°C; the coldest temperatures are measured in July with an average daily maximum of 24.3C and minimum of 9.4°C.
Wind direction:	Predominantly northeasterly, with southwesterly winds also predominant (See Figure 4).

The most prominent message for planners and designers with regard to climate is the changing trends measured and expected in ensuing years for Namibia, following global patterns. Predictions indicate that there will be more frequent and intense heavy precipitation, longer drought periods which will increase in intensity, as well as an increase in warm spells and heat waves over most land areas (Working Group to IPCC, 2013).

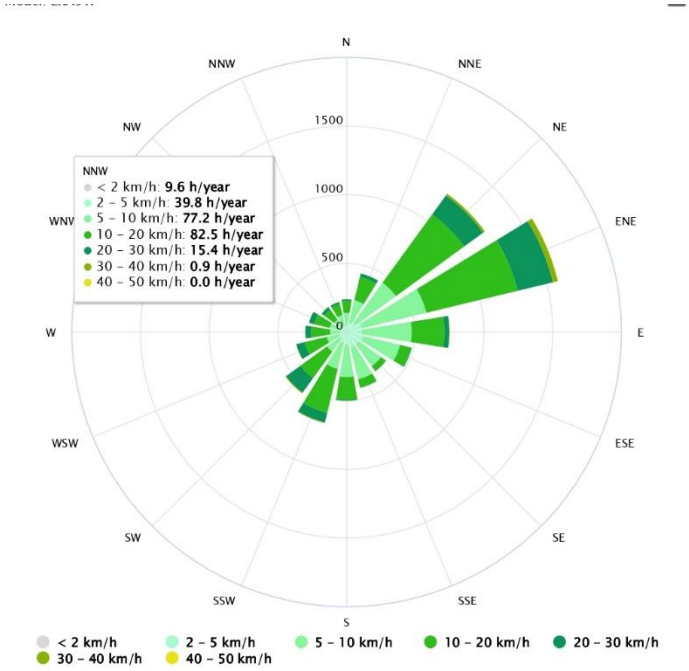


Figure 4: Wind rose for Omaruru (Source:Metoblue[3])

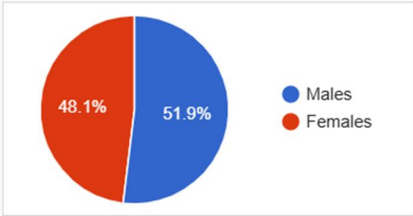
3 https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/omaruru_namibia_3354540)

4.2 SALIENT SOCIO-ECONOMIC FEATURES

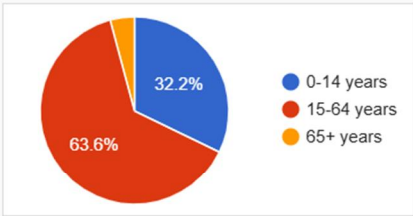
The table below provides the significant socio-economic features of Omaruru and the district. As may be seen from the data and charts below, Omaruru experiences a population growth. The majority of the population is youth and working age (labour force). The unemployment rate is high, notably among the youth.

Table 1: Basic population statistics, Omaruru

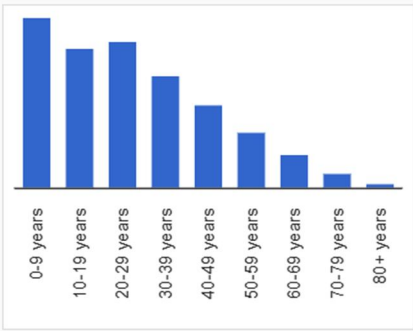
Feature	Omaruru Town, Omaruru (Sources: Namibia Statistics Agency, 2011, 2023, MOHSS, 2025)
Population	13322 (2023, now estimated at 14,800)
Population growth since 2011	4.5%
Unemployment rate	36.9% (youth unemployment rate 44.4%)
Health data	5 Clinics in Omaruru District (understaffed), 1 State Hospital, 5 private general practices[4]



Gender (C 2023)	
Males	6,916
Females	6,406



Age Groups (C 2011)	
0-14 years	2,760
15-64 years	5,459
65+ years	358



Age Distribution (C 2011)	
0-9 years	1,913
10-19 years	1,574
20-29 years	1,649
30-39 years	1,262
40-49 years	943
50-59 years	637
60-69 years	376
70-79 years	174
80+ years	49

Figure 5:Gender distribution, age groups and age distribution in Omaruru(https://www.citypopulation.de/en/namibia/admin/erongo/09OM__omaruru/)

[4] https://www.medpages.info/sf/index.php?page=listing&servicecode=728&suburbcode=11288

4.3 LAND USE

The existing site has existing buildings currently vacated, previously used as warehouse-type facilities. As may be seen in Figure 6 below, a historical cemetary is situated to the south-west, and another large historical site which accommodates historical buildings from an historical missionary era (Omaruru was established around the historical missionary site). The mission house is a museum, and the northern building currently houses a repair shop. The remainder of the site is used as an informal truck stop area. The Omaruru police station borders the site to the north-east, while single residences are located to the north-west.

Figure 6: Land use characteristics of the site

4.4 MUNICIPAL SERVICES

The site is fully connected to and makes use of municipal services, as follows:

Water: Municipal water supply system, water is abstracted from the Omaruru aquifer.

Sewage and effluent treatment: The existing Omaruru sewage treatment system is overloaded and the planning is to replace this with an updated sewage treatment facility. The existing sewage plant does not have the capacity to receive industrial effluent.

Solid Waste: The existing Omaruru general waste disposal site has reached capacity and it is planned to decommission it and to replace it with a new facility. There is no hazardous waste facility in Omaruru; the closest site is situated in Walvis Bay.

Electricity: Electricity is available through the municipal system, provided by NamPower.

Access and Traffic: The site is flanked by three streets, and borders the main street, therefore access to site and traffic circulation is expected to be good.

4.5 ECOLOGICAL FEATURES

The site has sandy soils expected to be porous. It drains towards the Omaruru River, which drains to the coast at Henties Bay. The entire Omaruru is underlain by the Omaruru Aquifer, which is the town's water supply. The area is rated as highly vulnerable to groundwater pollution and is situated in a groundwater protection area. Water quality is rated Class A (highest possible quality). (Department of Water Affairs, 2001). Being in an urban area, there is no conservation worthy vegetation on the site.

4.6 SOCIO-ECONOMIC AND ECOLOGICAL SENSITIVITIES OF THE AREA

The table below captures the main socio-economic and ecological features of the site and surrounds, focussing on the sensitivities to be considered during the study.

Table 2: Socio-economic and ecological sensitivities

Social/Ecological Feature	Description	Sensitivities/opportunities.
Socio-economic situation	Young population with high unemployment	Employment creation, skills transfer, development in Omaruru
Locality of other sensitive receptors in relation to the plant	Some residences to the north of the site.	Noise, Dust and fumes from the plant to be prevented with extraction. Noise attenuation to be implemented as necessary.
Surface and groundwater water quality	Locality of the Omaruru River and the Omaruru aquifer underlying the site.	Spills, waste water reaching the river and aquifer to be avoided.

Waste creation and disposal	Waste disposal facilities are remote and not adequate in Omaruru.	Waste management to be arranged through a waste collection and disposal company.
Energy consumption	Regional energy shortages	Opportunities for energy saving and renewable energy projects.
Health and safety	Working with heat and hazardous chemicals	Local people generally not accustomed to health and safety standards, focus on training.

Together with the issues raised by interested and affected parties, these sensitivities have been considered in the impact assessment stage (Section 6). The next section contains the details of the consultation conducted during the study.

5 PUBLIC CONSULTATION CONDUCTED

The following was done to identify and invite the interested and affected parties related to the MSALABS operations:

- The neighbouring properties were identified and letters sent to them for comment.
- Notices were placed in the press as prescribed by the Regulations. The stakeholders who registered in response to these notices were also added to the list.

All on the stakeholders list were e-mailed a Background Information Document for further comments of the issues to be addressed.

Minor comments received were documented in Appendix D and incorporated in this report.

The necessary information about the consultation process is attached as Appendix D.

6 IMPACT ASSESSMENT OF THE PROPOSED LABORATORY

Based on the screening process undertaken, the sensitivities and the potential issues identified on site, the following impact assessment was undertaken. This process is used to assess impacts according to existing available information and to identify any further work required.

6.1 METHODOLOGY EMPLOYED FOR THE IMPACT ASSESSMENT

The assessment has been done using information available about the environment and the project coupled with potential mitigation options. It provides an indication of the significance of the potential impacts identified.

The methodology used for the assessment is as follows:

Table 3: Definitions of each of the criteria used to determine the significance of impacts

	DESCRIPTION
NATURE	Reviews the type of effect that the proposed activity will have on the relevant component of the environment and includes "what will be affected and how?"
EXTENT	Geographic area. Indicates whether the impact is within a limited area (on site); local (limited to within 25km of the area); regional (limited to ~200km radius); national (limited to the coastline of Namibia); or international (extending beyond Namibia's boarders).
DURATION	Whether the impact is temporary (during construction activities or maintenance only), short term (1-5 years), medium term (5-10 years), long term (longer than 10 years, but will cease after operation) or permanent.
INTENSITY	Establishes whether the magnitude of the impact is destructive or innocuous and whether or not it exceeds set standards, and is described as none (no impact); low (where natural/ social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).
PROBABILITY	Considers the likelihood of the impact occurring and is described as uncertain, improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).
SIGNIFICANCE	Significance is given before and after mitigation. Low if the impact will not have an influence on the decision or require to be significantly accommodated in the project design, Medium if the impact could have an influence on the environment which will require modification of the project design or alternative mitigation (the project proposal can be used, but with deviations or mitigation) High where it could have a "no-go" implication regardless of any possible mitigation (an alternative should be used).

DEGREE OF CONFIDENCE IN PREDICTIONS	Is based on the availability of specialist knowledge and other information.

The application of the above criteria to determine the significance of potential impacts uses a balanced combination of duration, extent, and intensity/magnitude, modified by probability, cumulative effects, and confidence. Significance is described as follows:

Table 4: Definitions of the various significance ratings

SIGNIFICANCE RATING	CRITERIA
LOW	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/ magnitude, if at a local scale/ extent and of temporary duration/time.
MEDIUM	Where the impact could have an influence on the environment, which will require modification of the current operations and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.
HIGH	Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(ies) causing it, should not be permitted (i.e. there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer periods, and/or of high magnitude regionally and beyond.

This assessment is done with the assumption that there is no management regime in place for the potential impacts being assessed. A rating is also provided for the assumption that management as listed in the Environmental Management Plan is successfully implemented.

6.2 ASSESSING THE IDENTIFIED IMPACTS OF THE PROJECT

Table 5: Impact assessment table

POTENTIAL IMPACT	NATURE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
							PRE-MITIGATION	POST-MITIGATION
Water pollution from chemicals entering the waste water treatment system	The Omaruru waste water treatment facility does not have the capacity to treat the chemical waste from the fire assay and testing cycles.	Site	Long term	low	Definite	High	Low to medium	Negligeable Remove chemicals in the effectuate stream, water discharged to sump, ~~neatralise~~neutralised, and dispose at an approved disposal/ treatment facility.
Negative impact on the Omaruru Waste Disposal Site and resulting soil and water pollution and health risks	Chemical waste disposal causes ground water pollution and contamination at the Omaruru waste disposal site	Local, affecting aquifer	Permanent (groundwater pollution practically impossible to rectify)	Medium	Probable	High	Medium	Negligeable Separate chemical waste stream from general waste stream, for disposal at approved hazardous waste disposal site.
Impacts related to the handling and disposal of chemicals on site	Increased surface water pollution risk and human exposure to chemicals due to chemicals in run off	Local and regional	Long term	Low	Probable	High	Medium	Low Maintain sound chemical handling, storage and disposal practices.

POTENTIAL IMPACT	NATURE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
							PRE-MITIGATION	POST-MITIGATION
	on site reaching the natural drainage lines.							Chemicals only to be handled in bunded areas. Chemicals to be disposed at Hazardous waste site.
Dust, noise and fumes causing discomfort and/or health issues at neighbouring sites	Fumes, noise and dust is expected to be emitted at the sampling area, the emissions which may reach sensitive receptors especially neighbouring properties. (low density of receptors, mostly situated downwind of prevailing wind directions,	Local (surrounding neighbourhoods)	Long-term	Medium	Probable	Moderate (based on expectations at similar labs)	Medium to low	Low Extraction, noise attenuation as required. Staff training.
Health and Safety of Workforce and exposed community	Exposure to dangerous equipment and/or hazardous	Site specific, and surrounding community	Long-term	High	Probable	Medium to low	Medium to High	Low (design interventions see EMP) Worker medical examinations and data

POTENTIAL IMPACT	NATURE	EXTENT	DURATION	INTENSITY	PROBABILITY	DEGREE OF CONFIDENCE	SIGNIFICANCE	
							PRE-MITIGATION	POST-MITIGATION
	substances causing risk to workforce[5]							Medical standards for exposure levels upheld-see EMP. Adhere to Health and Safety Regulations.
Job Creation, skills transfer and economic development	Economic gain in Omaruru due to job creation and skills transfer	Local, impacts regions	Long term	Medium	Definite	High	Low	Low to Medium Employ local people above external staff where possible, include women without discrimination.
Pressure on energy source	The heating chambers used in the fire assay process are energy intensive and this places a burden on the energy source	Local but impacts regional energy source	Long term	Medium	Definite	High	Medium	Low to medium Investigate renewal energy supplementation Consider insultation, minimise the time the door is open, run full loads, regular maintenance, etc. as in the EMP.

[5] "*Workers in mine assay laboratories are exposed to respirable dust and silica, lead, arsenic, mercury, and other elements in the ore that is produced from samples that are oven-dried, split, crushed, and pulverized. These emissions also come during fluxing operations where the prepared sample is mixed with lead oxide, borax, flour, silica sand, and soda ash" (https://www.cdc.gov/niosh/engcontrols/ecd/detail27.html)*

7 CONCLUSIONS AND RECOMMENDATIONS

During the screening and impact assessment conducted for the Omaruru Fire assay laboratory, the following potential impacts have been identified:

KEY IMPACTS IDENTIFIED DURING OPERATIONS
Water pollution from chemicals entering the waste water treatment system. Chemicals are to be removed from the municipal effluent stream and disposed of at an approved waste disposal site otherwise treated to meet effluent standards. If this is adhered to, the impact will be negligent.
Negative impact (contamination) on the Omaruru Waste Disposal Site and resulting soil and water pollution and health hazards. All waste contaminated with chemicals from the fire assay process should be disposed of separately, stored in containers on site and disposed of at an approved waste disposal site.
Impacts related to the handling and disposal of chemicals on site. Chemicals not handled and stored separately and safety according to MSDS and health and safety regulations, will result in leakages, spills, human exposure leading to health risks, and water and soil contamination. This can be prevented with proper chemicals handling and storage, as per regulations.
Dust, noise and fumes causing discomfort and/or health issues at neighbouring sites. Extraction and ventilation is to be designed and implemented in the facility, to meet WHO, and Health and Safety Regulations. Daily management and monitoring per health and safety regulations.
Health and Safety risk of Workforce and exposed community, which can be managed to accepted standards by adhering to WHO and Health and Safety Regulations.
Job Creation, skills transfer and economic development . This positive impact can be enhanced by employing local labour, semi-skilled workers in order of percentage from Omaruru, the region, other regions, internationally. Females to be given equal opportunities.
Pressure on energy source as a result of energy intensive operations. Investigate supplementation from renewable sources and manage power usage through design, maintenance, and other management regimes.

There are some normal potential impacts during the construction of this project, comparable to any construction project. These are relatively low risk, because the buildings are already in existence. However, good environmental, health and safety practice is also applicable for the construction phase. The applicable management actions in the EMP should also be applied, therefore, to the construction phase.

The impacts expected from operations of the fire assay facility can all be managed through the implementation of the EMP, provided in the next section. These management actions are of crucial importance to prevent pollution, health and safety risk on the site.

8 THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

8.1 WHAT IS AN ENVIRONMENTAL MANAGEMENT PLAN?

The EMP is the part of the environmental impact assessment which ensures design and management actions are put in place to address environmental risks on the site.

It is recommended that the Environmental Management Plan is translated into an Environmental Management System (EMS). The system will enable the company to manage these risks and impacts as part of the overall company management system.

8.2 RESPONSIBILITIES

The responsibility for the implementation of the EMP ultimately lies with MSALABS Management. A Health, Safety and Environmental Officer (HSE), needs to be made responsible for the implementation of this EMP and ensure all the steps mentioned in it are taken, also that ongoing maintenance, refinement and adapting of it takes place. The below explains the duties of the HSE Officer :

He/she should have the background to implement and oversee the tasks at hand. If the HSE officer has no training in an understanding of the issues mentioned in this EMP, and health, safety, environmental and social matters generally, the individual needs to receive training.

The HSE Officer duties include the following:

- Take responsibility for ensuring all HSE related permits are up to date.
- Take responsibility for coordinating and following up (full circle) the initiatives and management actions listed in this EMP.
- Take responsibility for all monitoring actions listed under each section;
- Take responsibility for continuously reviewing this EMP so that changes in legislation, plant components, designs, operations, technology etc. may be considered and changes made where necessary.
- Take responsibility for maintaining a stakeholders list, complaints register and regular open and constructive communication with such stakeholders, giving feedback of how concerns are being considered.
- Take responsibility for non-compliance on site and devising a penalty/incentive strategy for the company.
- Take responsibility for initiating a record keeping system for keeping track of the implementation of this EMP.

- Consider with Management the need for an EMS, and implement following the decision.

8.3 CONTRACTORS

When MSALABS solicits contractors for building projects, the handling and disposal of waste, supplies of chemicals, etc. then they need to adhere to the various permit requirements, environmental management principles and laws as applicable. This needs to be integrated into the various contractors with such suppliers and updated regularly.

8.5 MANAGEMENT REQUIREMENTS

The management requirements in this EMP have the following three main categories:

- Permit and relevant legal requirements (Table 7);
- Construction, Operational and maintenance requirements.

8.5.1 PERMITS AND RELEVANT LEGAL PROVISIONS

Table 6: Relevant permit and legal requirements

THEME	LEGISLATION INSTRUMENT	MANAGEMENT REQUIREMENTS	CONTACT PERSON
Environmental	Environmental Management Act 7 of 2007 EIA Regulations (EIAR) GN 29-30 (GG 4878)	• The amendment, transfer or renewal of the Environmental Clearance Certificate "(EIAR, GN 29: S19 & 20). After this specific Clearance Certificate has been obtained, it needs to be renewed every three years.	Ms Saima Angula Tel: (061) 284 2751
Labour	Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	Labour Law Advice: Tel: (061) 309 957
Water	Water Resources Management Act (No 11 of 2013) and its 2023 Water Regulations Omaruru bylaws.	Identify standards pertaining to the Omaruru sewage and solid waste disposal systems. (generally no chemicals may be disposed of in these systems, to be separated and disposed of at an approved hazardous waste disposal site, or treatment facility or the effluent first treatment to meet standards.	
Fitness Certificate	Omaruru Town Planning Scheme General Health Act	Obtain and renew fitness Certificate.	
Factory permit	General Health Act	Obtain and renew factory permit.	

8.5.2 MITIGATION DETAILS: CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

The following table provides a large scale overview of all the major environmental management themes pertaining to both generic and site specific construction, operation and maintenance mitigation details. This table serves to act as quick reference, for the detailed mitigation details that follow below, for the implementation of the of this EMP.

Table 7: Generic and site-specific environmental management actions for the construction phase

THEME	OBJECTIVE	SECTION
Waste management	Avoid and where not possible minimise all pollution associated with operations.	Section A
Labour, Health and safety	Safeguard health and safety of workforce and general public.	Section B
Environmental training and awareness	Awareness creation regarding the provisions of the EMP as well as importance of safeguarding environmental resources.	Section C
Communication with Interested and Affected Parties (I&APs)	Provide a platform for I&APs to raise grievances and receive feedback and hence minimise negative conflict	Section D
Resource conservation	Conservation of energy through pursuing renewable energy alternatives and reducing energy consumption	Section E

8.5.3 SECTION A: WASTE MANAGEMENT

Targets:

- All waste to be as a matter of preference 1) eliminated, 2) reused and 3) recycled, with no waste remaining that does not fall into either of these categories.
- Minimum general waste disposed of at Omaruru Waste Disposal site, but rather re-used, re-purposed, or recycled ((paper, plastics, cardboard, glass).
- Minimum hazardous waste at an approved Hazardous waste disposal site, but rather limited with minimally required quantities at inputs, neutralised, re-used or treated before disposal.

ASPECT	MANAGEMENT ACTIONS
Waste streams	• Identify the various categories of waste on the site, including general waste (paper, cardboard, plastic, tin, etc.), electronic waste, hazardous waste, post-digestive waste and high-risk waste. • Identify the source of each category, and record the volumes and/or weight at each source as well as collectively. • Monitor the volumes and/or weight of each category.
Waste disposal methods	• Identify the current disposal destination of each category.
Continual improvement of waste reduction, handling, disposal	• Bio-waste is to be reused rather than disposed of. • Consider how special risk material and post-digestive waste management may be improved. • Consider other initiatives on how the given targets may be continually improved. • Communicate the policy to each department and the responsibility of each individual to reduce, reuse and recycle waste

MSALABS Waste Management Plan is attached as APPENDIX E

8.5.4 SECTION B: LABOUR RELATIONS, WORKER AND COMMUNITY HEALTH AND SAFETY

Targets:

- Zero incidents on site
- 100% compliance with Health and Safety Regulations
- 100% compliance with Labour law
- Zero complaints about noise, fumes and dust
- Maintenance of standards.

ASPECT	MITIGATION MEASURE
Health and wellness	• Introduce health, safety and environmental training of staff in accordance with Health and Safety Regulations.
	• Implement emission abstraction, scrubbers, and, noise attenuation and ventilation to achieve standards in the Health and Safety Regulations, for occupational exposure limits.
Health and Safety Regulations	• Compare the current Waste Management Plan, which contains some safety measures, with the Health and Safety Regulations, identify gaps in the plan to include pertinent procedures and standards, specifically with regards to hazardous chemicals, heat, dust, airborne emissions, fumes, and other exposure control and limits. • Maintain Health and Safety Regulations and Waste Management Plan. • Identify areas of non-compliance and implement incentives and/or penalties for such.
	• Areas to be covered include training of staff, medical surveillance and monitoring, identification, handling and storage of chemicals, identification of hazardous chemicals, airborne emissions and noise, occupational exposure, according to regulations, their exposure limits in regulations, records to be kept, bi-annual reporting, inspections, etc.
Labour Relations	• Company with the labour Act as far as employment contracts are concerned. • Provide a grievance mechanism to staff from dealing with grievances. • Employ people from the Omaruru community as preference, then from the region, with the lowest preference external regions and external to Namibia. • Provide equal opportunities to women. • The company is to have a skills transfer plan, where skills in Namibia/region are currently lacking.

8.5.5 SECTION C: HSE TRAINING AND AWARENESS

Targets:

- 100% attendance of all staff at HSE induction training.
- 100% attendance of all staff of annual HSE training refresher courses

ASPECT	MANAGEMENT ACTIONS
HSE Training	The entire staff complement of MSALABS should undergo HSE induction and refresher training which should include as a minimum the following: • Explanation of the importance of health, safety and environmental management with its legal requirements and implications. • Discussion of the potential HSE implications of MSALAB activities • Employees' roles and responsibilities, including waste reduction, health and safety, correct handling and disposal of waste and hazardous substances. • For each division, the specific environmental, health and safety provisions that are applicable. • Maintain the training for each staff member periodically.

8.5.6 SECTION D: COMMUNICATION WITH INTERESTED AND AFFECTED PARTIES (I&APS) AND AUTHORITIES

Targets:

- Establish an open communication policy
- List of I&APs compiled and constantly updated as new parties lodge complaints
- Updated complaints register.
- Responses sent within a period of 1 week of receipt of a complaint (acknowledgement of receipt), with a commitment of how the matter will be investigated and when feedback will be given.
- Honouring all commitments made above.
- Communication sent on any changes at the laboratory that could affect the stakeholders.

ASPECT	MANAGEMENT MEASURES
General communication matters	• List I&APs of MSALABS which include the neighbours, those that have complained in the past, as well as authorities. • Continually update this list to include new correspondees, new appointees at Authorities, and new organisations with an interest. • A complaints register should be developed, which includes a record of complaints received (date, time and contents), as well as the details of how the matter is being dealt with. • All communication to stakeholders, particularly when it involves a complaint, is to be channelled through the HSE Officer. • Complaints are to be acknowledged and referred to the department involved, with a commitment of how the matter will be dealt with and when feedback can be expected. • All decisions which involve complainants directly are to be communicated to them without delay. • MSALABS shall communicate to the stakeholders if there are any changes made to the laboratory that could affect them.

8.5.7 SECTION E: RESOURCE CONSERVATION

Targets:

- Energy consumption target 1.59kg CO^2/sample (measured against global operations); 1,3kw/sample
- Optimum non-renewable energy sources
- Water consumption target

ASPECT	MANAGEMENT MEASURES
Renewable energy	• Consider solar installation as a supplementary energy source
Energy conservation	• Install equipment to optimise energy saving principles
	• Compile an energy conservation plan for the operations.
	• Implement energy audit practices throughout the organisation.
Water conservation	• Set targets for water conservation and implement throughout the organisation.

9 BIBLIOGRAPHY

Government of Namibia, 2013, 2023. *Namibia 2011 and 2021 Housing and Population cencus. Main Report..* Windhoek: Namibia Statistics Agency...

Websites as cited in footnotes.

Appendix A

CURRICULUM VITAE
STEPHANIE VAN ZYL

Position:	Environmental Consultant
Name of firm:	Enviro Dynamics cc
Profession:	Environmental Assessment Practitioner
Date of birth:	20 December 1970
Years with firm:	since 1999
Nationality:	Namibian

Relevant Experience:

Stephanie has twenty-five years experience in Environmental Management and Public Participation and Facilitation (Environmental and Social Assessment, Environmental Management Plans, Environmental Education, Environmental Management Systems, Environmental Monitoring and Evaluation), Urban and Regional Development Planning, Socio-Economic Research, Land Use Planning, and Project Co-ordination.

She has been involved in or acted as the principle consultant for a number of large-scale environmental and social assessments in the following sectors:

- Land use and development plans for urban centres, regions, and nation-wide;
- Various other strategic initiatives;
- infrastructure including roads, railway lines, power lines, and water supply networks;
- tourism including tourism development plans and lodges;
- mining;
- processing and manufacturing projects;
- agriculture; and
- power generation projects.

Tertiary Education:
Bachelaureus (Town and Regional Planning) University of Pretoria 1992
Masters (Environmental Management) University of the Orange Free State 1999

Membership in Professional Societies:
South African Institute of Ecologists and Environmental Scientists (SAIES) – professional member
International Association of Impact Assessment (IAIASA) - member
Namibian Institute of Town and Regional Planners (NITRP) – professional member
Namibian Council of Town and Regional Planners (CTRP) – professional member
Environmental Assessment Professionals Association of Namibia (EAPAN) –founder member.

Employment Record:

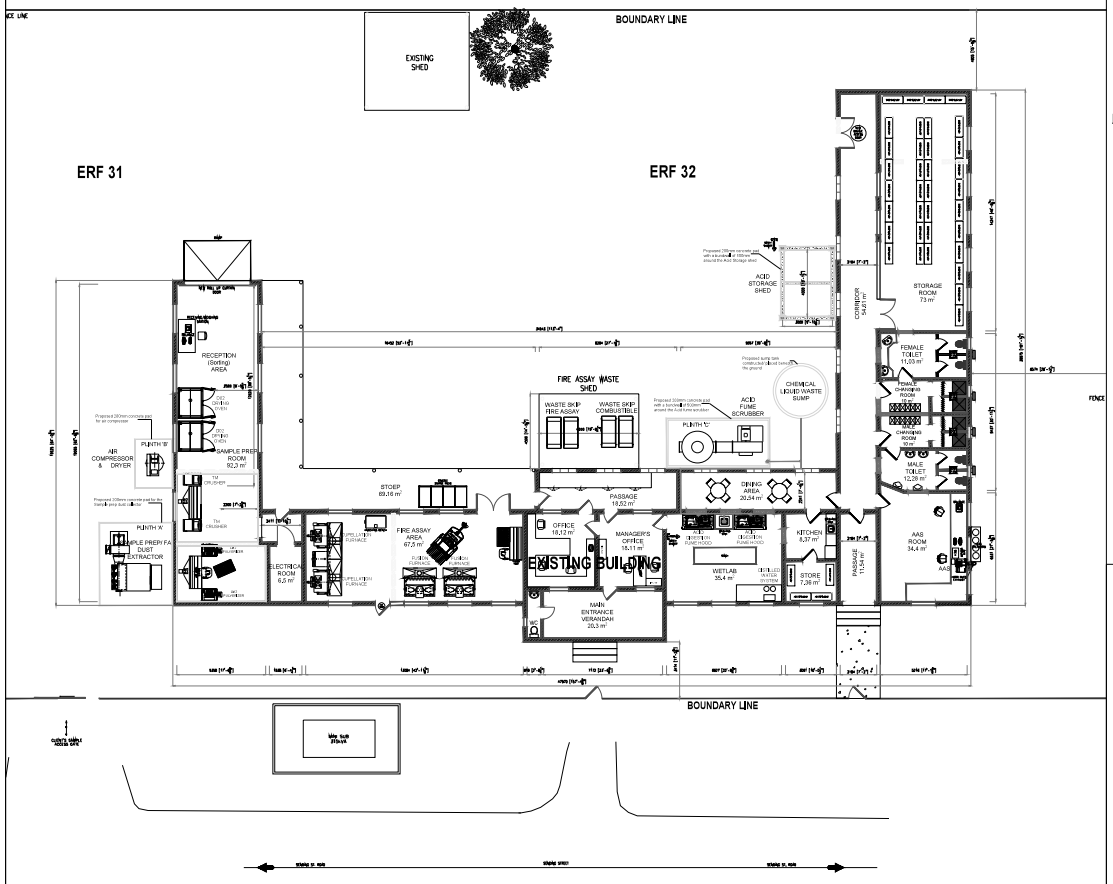
1999 to date:	Managing Director: Enviro Dynamics, Windhoek Manage the office, lead or take part in environmental management and planning related projects and activities, reviewing of EIAs and other project management related work produced by specialists, and other staff. Strong reviewer/mentor role.
1994 – 1999:	Town Planner, Windhoek City Council Assistant Project Director of the City's Township Development Programme since 1997, project manager of various township development projects, environmental assessment of various development projects, environmental and planning policy on various developmental issues, land use planning of new residential, industrial, and business areas.
1994:	Town Planning Assistant, Baard & Van Niekerk Land Surveyors Land use planning and applications to relevant authorities.
1993:	Contract positions as assistant town and regional planner with Stubenrauch Planning Consultants, Windhoek and Frank De Villiers & Associates, Pietersburg, South Africa Socio-economic research, land use planning, structure planning.

Appendix B

Laboratory Layout

PROPOSED PLAN VIEW

SCALE 1:300



GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
2. ALL MEASUREMENTS ARE TO BE CHECKED ONSITE PRIOR TO CONSTRUCTION

LEGEND:

- EXISTING WALLS
- WALLS TO BE DEMOLISHED
- NEW MASONRY WALLS
- NEW CONCRETE
- NEW DRAIN PIPE

THIS DOCUMENT IS GUIDE LINES IT CAN NOT BE CONSIDERED AS "APPROVED FOR CONSTRUCTION"

For Information

3 0 3 6 12 18 21

GRAPHIC SCALE 1:300

REV.	DATE	DESCRIPTION	DRAWN BY	CHECK. BY	APPROV. BY
1.0	02/06/2025	REVISED AS PER INTERNAL REVIEW COMMENTS	VHA	-	-
0.0	19/05/2025	ISSUED FOR INFORMATION	VHA	-	-

MSALABS

PROJECT TITLE: OMARURU – NAMIBIA PROJECT
SAMPLE PREP & FIRE ASSAY LABORATORY

DRAWING TITLE: TENANCY LAYOUT DETAILS
CONCEPTUAL LAYOUT

MSALABS DATA	DRAWING NUMBER	REV.	SCALE
MSA/NAM	MSA-CV-001	1.0	1/300

DRAWING BACKGROUND : Title Block A3.dwg

Windhoek Sales Office
Parsons Road, Southern
Industry Area, Windhoek
Shop no. 3
Cel: +264 81 144 1220

Omaruru Sales Office
Erf 31 & 32, Extension 12
Omaruru main road,
behind Police Station
Cel: +264 81 144 1226

Rundu Sales Office
Ngandu Plaza, next to
Old Cymot
Cel: +264 81 144 1219

Oshakati Sales Office
Main Road Oshakati
Opposite Swapo Office
Tel/Fax: +264 65 222077
Cel: +264 81 144 1218

FACTORY & ADMIN OFFICES ONETHINDI, OLUKONDA MAIN ROAD
P O BOX 15727, OSHAKATI NAMIBIA
TEL: +264 81144 1216 - EMAIL: mgolukonda03@gmail.com

21 May 2025

Technical Department
Municipality Of Omaruru
PO Box 14,
Omaruru
Namibia

Dear Sir/Madam,

REQUEST FOR ZONING CONFIRMATION AND CONSENT USE FOR ERF 31 & 32, SENDING STREET, OMARURU – SERVICE INDUSTRY USE

The above subject bears references to the following,

We write to request a zoning confirmation and consent use for Erf 31 and Erf 32, located on Sending Street, Omaruru. These erven are currently leased to MSALABS, who intend to establish a modern geochemistry analytical laboratory to support mining and exploration operations.

The laboratory will specialize in the following processes:

1. Sample preparation (drying, crushing & pulverizing)
2. Fire Assay, Wet Lab, ICP & AAS analytical work

During discussions with the technical team, it was noted that the area was previously categorized as a general Business zone. We kindly seek your confirmation and formal classification of the current zoning and request that these premises be considered and approved under the Service Industry category, which better aligns with the nature of operations proposed by MSALABS.

We further request the issuance of a No Objection Certificate (NOC) to allow MSALABS to proceed with laboratory operations on the said premises.

We trust this request will receive your favorable consideration. Please do not hesitate to contact us for any further information or clarification.

OMARURU MUNICIPALITY
Tel: +264 64 570028
Fax: +264 64 570005
2025 -06- 17
Sign.....
OFFICE OF THE CEO

Approved & granted for the work to be done in this area with the understanding that all environmental aspects are adhered to.

Yours Sincerely,

.....

Mr. Josua Medusalem (MD)

Preference for Fire Assay over Photon Assay in Precious Metal Analysis

1. Background

In the field of analytical chemistry, particularly in the analysis of precious metals such as gold, the choice of assay method significantly impacts the accuracy, reliability, and applicability of results. Two prominent techniques—Fire Assay and Photon Assay—are widely used in the industry. Fire Assay, a centuries-old method, is renowned for its precision and reliability, while Photon Assay is a newer, non-destructive technique that offers speed and efficiency.

The proponent is a global company who were one of the first to offer Photon Assay analysis. However, due to the number of samples and the accuracy required for the particular minerals testing for, fire assay is more favourable and has more accurate results.

The reason for us deciding to use Omaruru as our location was the fact that our client would not be too far. The proponent researched various site alternatives to find a location that was close to their main client, that had stable infrastructure, and which is within reasonable costs.

2. Technical Comparison

Fire Assay involves melting a sample at high temperatures to separate metal content from impurities, allowing for total decomposition and accurate quantification. Photon Assay, on the other hand, uses high-energy X-rays to excite atoms in the sample, measuring emitted gamma rays to estimate metal content. While Photon Assay is faster and preserves the sample, it is limited in elemental range and precision.

3. Advantages of Fire Assay

- High Accuracy: Fire Assay provides precise measurements, especially for trace elements down to 1 ppb.
- Broad Elemental Range: Capable of analysing gold, platinum group metals, and other elements.
- Sample Versatility: Effective for various sample types including soil, drill core, and concentrates.

- Industry Acceptance: Recognized by regulatory bodies and used in legal and commercial contexts.
- Interference Elimination: Customized fluxes reduce matrix effects and improve reliability.

4. Limitations of Photon Assay

- Lower Precision: Less accurate for trace elements and complex matrices.
- Limited Elemental Scope: Primarily suitable for gold, silver, and copper.
- Accessibility Issues: Often available only through hire, limiting use by small-scale labs.
- High sample volume required: Photon Assay is only cost-effective when processing over 15,000 samples per month, a volume that early-stage exploration companies often cannot provide.

5. Conclusion and Recommendations

While Photon Assay offers advantages in speed and environmental safety, Fire Assay remains the preferred method for high-accuracy applications in precious metal analysis. Its proven reliability, broader applicability, and industry-wide acceptance make it the gold standard. It is recommended that Fire Assay be used for critical analyses where precision and regulatory compliance are paramount.

MSA's extensive track record in safety demonstrates our commitment to minimizing risks associated with Fire Assay operations through the use of automated systems, and stringent ISO-certified protocols. While CPA is often seen as a faster, non-destructive alternative, it introduces radiation safety concerns and depends on equipment hire, which can complicate long-term sustainability and accessibility. On the sustainability front, Fire Assay has evolved with more energy-efficient furnaces and robust waste recycling processes, narrowing the environmental gap with CPA.

Appendix C
MSDS Sheets

Gold AA Standard, 1000ppm (1mL = 1mg Au)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 02/17/2015 Revision date: 10/03/2017 Supersedes: 10/03/2017 Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form : Mixtures

Product name : Gold AA Standard, 1000ppm (1mL = 1mg Au)

Product code : LC14890

1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.

Recommended use : Laboratory chemicals

Restrictions on use : Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin corrosion/irritation Category 1B	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS-US) : P260 - Do not breathe mist
P264 - Wash exposed skin thoroughly after handling
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center or doctor/physician
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Water	(CAS-No.) 7732-18-5	89.82	Not classified
Hydrochloric Acid, 37% w/w	(CAS-No.) 7647-01-0	9.98	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402
Gold Chloride, Trihydrate	(CAS-No.) 16961-25-4	0.2	Skin Corr. 1C, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Causes severe skin burns and eye damage.

Symptoms/effects after skin contact : Burns.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Burns. Nausea. Vomiting.

4.3. Immediate medical attention and special treatment, if necessary

Hospitalize at once. Doctor: gastric lavage is not recommended.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Reactivity : Thermal decomposition generates : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Protective goggles. Protective clothing. Gloves. Face-shield.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist.

Hygiene measures : Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Light sensitive. Keep container closed when not in use.

Incompatible products : Strong bases.

Incompatible materials : Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Gold Chloride, Trihydrate (16961-25-4)
Not applicable

Hydrochloric Acid, 37% w/w (7647-01-0)		
ACGIH	ACGIH Ceiling (mg/m³)	2.98 mg/m³
ACGIH	ACGIH Ceiling (ppm)	2 ppm
OSHA	OSHA PEL (Ceiling) (mg/m³)	7 mg/m³
OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (ceiling) (mg/m³)	7 mg/m³
NIOSH	NIOSH REL (ceiling) (ppm)	5 ppm

Water (7732-18-5)
Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Chemical resistant apron. Face shield. Gloves. Safety glasses.

Hand protection:

Wear protective gloves

Eye protection:

Chemical goggles or face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Wear appropriate mask

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Yellow
Odor	:	None.
Odor threshold	:	No data available
pH	:	≤ 1
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong bases.

10.6. Hazardous decomposition products

Hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)	
LD50 oral rat	700 mg/kg
LD50 dermal rabbit	5010 mg/kg
ATE US (oral)	700 mg/kg body weight
ATE US (dermal)	5010 mg/kg body weight

Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: ≤ 1

Serious eye damage/irritation : Causes serious eye damage.
pH: ≤ 1

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after skin contact : Burns.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Burns. Nausea. Vomiting.

SECTION 12: Ecological information

12.1. Toxicity

Hydrochloric Acid, 37% w/w (7647-01-0)	
LC50 fish 1	282 mg/l (LC50; 96 h)
EC50 Daphnia 1	< 56 mg/l (EC50; 72 h)

12.2. Persistence and degradability

Gold AA Standard, 1000ppm (1mL = 1mg Au)	
Persistence and degradability	Not established.

Gold Chloride, Trihydrate (16961-25-4)	
Persistence and degradability	Not established.

Hydrochloric Acid, 37% w/w (7647-01-0)	
Persistence and degradability	Biodegradability: not applicable. No test data on mobility of the components available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

Water (7732-18-5)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Gold AA Standard, 1000ppm (1mL = 1mg Au)	
Bioaccumulative potential	Not established.

Gold Chloride, Trihydrate (16961-25-4)	
Bioaccumulative potential	Not established.

Hydrochloric Acid, 37% w/w (7647-01-0)	
Log Pow	0.25 (QSAR)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Water (7732-18-5)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

Hydrochloric Acid, 37% w/w (7647-01-0)	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3264 Corrosive liquid, acidic, inorganic, n.o.s., 8, II

UN-No.(DOT) : UN3264

Proper Shipping Name (DOT) : Corrosive liquid, acidic, inorganic, n.o.s.

Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102)	:	B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L
DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
Other information	:	No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Gold AA Standard, 1000ppm (1mL = 1mg Au)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Gold Chloride, Trihydrate	CAS-No. 16961-25-4	0.2%

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Hydrochloric Acid, 37% w/w	CAS-No. 7647-01-0	9.98%

Gold Chloride, Trihydrate (16961-25-4)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

Hydrochloric Acid, 37% w/w (7647-01-0)	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

Gold Chloride, Trihydrate (16961-25-4)
Not listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Gold Chloride, Trihydrate (16961-25-4)
Not listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 10/03/2017

Other information : None.

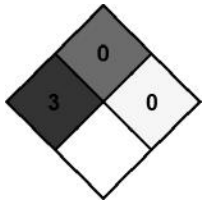
Full text of H-phrases: see section 16:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation
H402	Harmful to aquatic life

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : D

D - Face shield and eye protection, Gloves, Synthetic apron

SDS US LabChem

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

SAFETY DATA SHEET

Creation Date 24-Aug-2009 **Revision Date** 13-Oct-2023 **Revision Number** 8

1. Identification

Product Name **Hydrochloric acid**

Cat No. : **A481-212; A481-212LC; S71942SC; S71943; S71943ND; S80036; S80038; SA49**

CAS No 7647-01-0
Synonyms Muriatic acid; Hydrogen chloride; HCl (Technical/Certified ACS Plus/Optima/NF/FCC)

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals

Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep only in original container
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	62-65
Hydrochloric acid	7647-01-0	35-38

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a

	pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Corrosive material. Causes burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not get in eyes, on skin, or on clothing.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Incompatible Materials. Metals. Strong oxidizing agents. Bases. sodium hypochlorite. Amines. Fluorine. Cyanides. Alkaline.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Hydrochloric acid	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m³ (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³	Ceiling: 2 ppm

Legend

ACGIH *- American Conference of Governmental Industrial Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH: *NIOSH - National Institute for Occupational Safety and Health*

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143. or. Acid gases filter: Type E, Yellow.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	pungent
Odor Threshold	No information available
pH	< 1
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	57 °C / 135 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	125 mbar @ 20 °C
Vapor Density	1.27
Specific Gravity	1.18
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	1.8 mPa.s @ 15°C
Molecular Formula	HCl

Molecular Weight 55.55

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Metals, Strong oxidizing agents, Bases, sodium hypochlorite, Amines, Fluorine, Cyanides, Alkaline

Hazardous Decomposition Products Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Contact with metals may evolve flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information
Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Hydrochloric acid	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	1.68 mg/L (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric acid	7647-01-0	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrochloric acid	-	282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leucscus idus	-	56mg/L EC50 72h Daphnia

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group II

TDG

UN-No UN1789
Proper Shipping Name HYDROCHLORIC ACID
Hazard Class 8
Packing Group II

IATA

UN-No UN1789
Proper Shipping Name Hydrochloric acid
Hazard Class 8
Packing Group II

IMDG/IMO

UN-No UN1789
Proper Shipping Name Hydrochloric acid
Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Hydrochloric acid	7647-01-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400
Hydrochloric acid	7647-01-0	X	-	231-595-7	X	X	X	X	X	KE-20189

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Hydrochloric acid	7647-01-0	35-38	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Hydrochloric acid	X	5000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrochloric acid	X		-

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrochloric acid	-	TQ: 5000 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrochloric acid	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Hydrochloric acid	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrochloric acid	Release STQs - 15000lb (concentration >=37%) Release STQs - 5000lb (anhydrous) Theft STQs - 500lb (anhydrous)

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Hydrochloric acid	7647-01-0	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	25 tonne	250 tonne	Not applicable	Annex I - Y34

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	24-Aug-2009
Revision Date	13-Oct-2023
Print Date	13-Oct-2023
Revision Summary	SDS sections updated. 2. 3. 11.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 12-Mar-2009 **Revision Date** 24-Dec-2021 **Revision Number** 10

1. Identification

Product Name **Nitric acid (65 - 70%)**

Cat No. : **AC124650000; AC124650010; AC124650011; AC124650025; 124650026**

CAS No 7697-37-2
Synonyms Azotic acid; Engraver's acid; Aqua fortis

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Oxidizing liquids	Category 3
Corrosive to metals	Category 1
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1

Label Elements

Signal Word
Danger

Hazard Statements

May intensify fire; oxidizer
May be corrosive to metals
Causes severe skin burns and eye damage
Toxic if inhaled
Corrosive to the respiratory tract

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Keep only in original container
Wear respiratory protection
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Spills
Absorb spillage to prevent material damage
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Corrosive to the respiratory tract

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Nitric acid …% [C ≤ 70 %]	7697-37-2	65 - 70
Water	7732-18-5	30 - 35

4. First-aid measures

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately.

Ingestion Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Most important symptoms and effects Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available

Oxidizing Properties Oxidizer

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products
Nitrogen oxides (NOx). Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	0	OX

6. Accidental release measures

Personal Precautions Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment as required.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal. Wear self-contained breathing apparatus and protective suit.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe mist/vapors/spray. Keep away from clothing and other combustible materials.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Do not store in metal containers. Keep in properly labeled containers. Corrosives area. Incompatible Materials. Combustible material. Strong bases. Reducing Agent. Metals. Finely powdered metals. Organic materials. Aldehydes. Alcohols. Cyanides. Ammonia. Strong reducing agents.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Nitric acid ... % [C ≤ 70 %]	TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m³ TWA: 2 ppm TWA: 5 mg/m³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m³ STEL: 4 ppm STEL: 10 mg/m³	TWA: 2 ppm STEL: 4 ppm

Legend

ACGIH *- American Conference of Governmental Industrial Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH IDLH: *NIOSH - National Institute for Occupational Safety and Health*

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes or

clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wear suitable gloves and eye/face protection.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear Colorless, Light yellow
Odor	Strong Acrid
Odor Threshold	No information available
pH	< 1.0 (0.1M)
Melting Point/Range	-41 °C / -41.8 °F
Boiling Point/Range	Not applicable
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.94 kPa (20°C)
Vapor Density	No information available
Specific Gravity	1.40
Solubility	miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	HNO3
Molecular Weight	63.01

10. Stability and reactivity

Reactive Hazard Yes

Stability Oxidizer: Contact with combustible/organic material may cause fire.

Conditions to Avoid Incompatible products. Combustible material. Excess heat. Exposure to air or moisture over prolonged periods.

Incompatible Materials Combustible material, Strong bases, Reducing Agent, Metals, Finely powdered metals, Organic materials, Aldehydes, Alcohols, Cyanides, Ammonia, Strong reducing agents

Hazardous Decomposition Products Nitrogen oxides (NOx), Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Mist LC50 Category 3. ATE = 1 - 5 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid …% [C ≤ 70 %]	Not listed	Not listed	LC50 = 2500 ppm. (Rat) 1h
Water	-	-	-

Toxicologically Synergistic No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Nitric acid …% [C ≤ 70 %]	7697-37-2	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Persistence and Degradability Miscible with water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Nitric acid …% [C ≤ 70 %]	-2.3

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

TDG

UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

IATA

UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

IMDG/IMO

UN-No	UN2031
Proper Shipping Name	NITRIC ACID
Hazard Class	8
Subsidiary Hazard Class	5.1
Packing Group	II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Nitric acid ... % [C ≤ 70 %]	7697-37-2	X	ACTIVE	-
Water	7732-18-5	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Nitric acid ... % [C ≤ 70 %]	7697-37-2	X	-	231-714-2	X	X	X	X	X	KE-25911
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Nitric acid ... % [C ≤ 70 %]	7697-37-2	65 - 70	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid ... % [C ≤ 70 %]	X	1000 lb	-	-

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Nitric acid …% [C ≤ 70 %]	-	TQ: 500 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nitric acid …% [C ≤ 70 %]	1000 lb	1000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitric acid …% [C ≤ 70 %]	X	X	X	X	X
Water	-	-	X	-	-

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitric acid …% [C ≤ 70 %]	Release STQs - 15000lb Theft STQs - 400lb

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Nitric acid …% [C ≤ 70 %]	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Nitric acid …% [C ≤ 70 %]	7697-37-2	Listed	Not applicable	Not applicable	Not applicable
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

Nitric acid …% [C ≤ 70 %]	7697-37-2	Not applicable	Not applicable	Not applicable	Annex I - Y34
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 12-Mar-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary SDS sections updated. 2. 11.

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End of SDS

Section 1 - Identification of the Material and Supplier

Western Refractories Pty Ltd
53 Chisholm Crescent
Kewdale, WA 6105
Phone: +61 8 9359 2233 (office hours)
Emergency phone: 0418 868 282 (any time)

Chemical nature: Blend of ingredients including lead monoxide, sodium carbonate, sodium tetraborate and other ingredients.

Trade Name: **Assay Flux – F104**

Product Use: Used in laboratory analysis of minerals for gold.

Creation Date: **April, 2016**

This version issued: **April, 2016** and is valid for 5 years from this date.

Poisons Information Centre: Phone 13 1126 from anywhere in Australia

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: Xi, Irritating. T, Toxic. Hazardous according to the criteria of SWA.

Dangerous according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

SUSMP Classification: S6
ADG Classification: Class 6.1: Toxic Substances.
UN Number: 2291, LEAD COMPOUND, SOLUBLE, N.O.S. (Lead monoxide).




GHS Signal word: DANGER

Acute Toxicity Oral Category 3
Acute Toxicity Dermal Category 4
Skin Corrosion /Irritation Category 2
Serious eye damage/eye irritation Category 1
Acute Toxicity Inhalation Category 4
Specific Target Organ Toxicity - Single Exposure Category 3
Germ cell mutagenicity Category 2
Carcinogenicity Category 2
Reproductive Toxicity Category 1
Specific Target Organ toxicity - single exposure Category 2
Specific Target Organ toxicity - repeated exposure Category 2
Hazardous to aquatic environment Short term/Acute Category 2

HAZARD STATEMENT:

H301: Toxic if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H341: Suspected of causing genetic defects.
H351: Suspected of causing cancer.
H360: May damage fertility or the unborn child.
H373: May cause damage to organs through prolonged or repeated exposure.
H401: Toxic to aquatic life.

PREVENTION

P102: Keep out of reach of children.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dusts.
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash contacted areas thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves, protective clothing and eye or face protection.
P281: Use personal protective equipment as required.

RESPONSE

P314: Get medical advice or attention if you feel unwell.
P362: Take off contaminated clothing and wash before reuse.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313: If skin irritation occurs: Get medical advice.
P337+P313: If eye irritation persists: Get medical advice.
P370+P378: Not combustible. Use extinguishing media suited to burning materials. Water fog or fine spray is the preferred medium for large fires.

STORAGE

P405: Store locked up.
P403+P233: Store in a well-ventilated place. Keep container tightly closed.

DISPOSAL

P501: If they can not be recycled, dispose of contents to an approved waste disposal plant and containers to landfill (see Section 13 of this SDS).

Emergency Overview

Physical Description & Colour: Fine tan-yellow powder.
Odour: Mild odour of diesel fuel.
Major Health Hazards: toxic if swallowed, danger of cumulative effects, limited evidence of a carcinogenic effect, may cause serious damage to eyes, may impair fertility, may cause harm to unborn children. This product is a cumulative poison. Minor exposures over a period of time may lead to serious health problems.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m^3)	STEL (mg/m^3)
Sodium carbonate	497-19-8	20-60	not set	not set
Lead monoxide	1317-36-8	20-70	0.15	not set
Disodium tetraborate, anhydrous	1330-43-4	5-30	1	not set
Other non hazardous ingredients	secret	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: If irritation occurs, contact a Poisons Information Centre, or call a doctor. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. In severe cases, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact: Quickly and gently brush away excess particles. Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If irritation persists, repeat flushing and seek medical attention.
Eye Contact: Quickly and gently brush particles from eyes. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.
Ingestion: If swallowed, do NOT induce vomiting; rinse mouth thoroughly with water and contact a Poisons Information Centre, or call a doctor at once. Give activated charcoal if instructed.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.
No fire decomposition products are expected from this product at temperatures normally achieved in a fire.
Extinguishing Media: Not combustible. Use extinguishing media suited to burning materials. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.
Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus.

Flash point:	Does not burn.
Upper Flammability Limit:	Does not burn.
Lower Flammability Limit:	Does not burn.
Autoignition temperature:	Not applicable - does not burn.
Flammability Class:	Does not burn.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC, Viton. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable dust mask.
Stop leak if safe to do so, and contain spill. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. This material may be suitable for approved landfill. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10. Take special care if handling this product over extended periods as it is a cumulative poison.
Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in a cool, well ventilated area. Check containers periodically for leaks. Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. If you keep more than 10000kg or L of Dangerous Goods of Packaging Group III, you may be required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your Dangerous Goods authority in order to clarify your obligations. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	**TWA (mg/m^3)**	**STEL (mg/m^3)**
disodium tetraborate, anhydrous	1	not set
Lead monoxide	0.15	not set

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Protective glasses or goggles must be worn when this product is being used. Failure to protect your eyes may lead to severe harm to them or to general health. Emergency eye wash facilities must also be available in an area close to where this product is being used.

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC, Viton.

Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable dust mask.

Eyebaths or eyewash stations and safety deluge showers should, if practical, be provided near to where this product is being handled commercially.

After removal of overalls, hands and face should be thoroughly washed using soap and water. The use of a nailbrush is recommended to clean thoroughly. A barrier cream can be applied to exposed skin to reduce itchiness. Do not eat, drink or smoke in any workroom where lead products are being handled. Wash hands before eating, drinking or smoking. Regular cleaning of masks and clothing is essential

By law, you must provide and pay for a worker's health monitoring, both before lead risk work begins and one month afterwards. The monitoring must be carried out by or under the supervision of a registered medical practitioner with relevant experience.

A worker must be removed from the lead risk work and SafeWork must be notified when:

- **a worker's test results are over the prescribed blood lead levels**
- **test results suggest that the worker may have contracted a disease, injury or illness from working with lead**
- **risk control measures have failed and corrective measures need to be taken - including if the worker can continue to carry out the work (as advised by a medical practitioner in the health monitoring report).**

You must also ensure a medical examination of the worker within seven days of removing them from the work.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Fine tan-yellow powder.
Odour:	Mild odour of diesel fuel.
Boiling Point:	Not available.
Freezing/Melting Point:	No specific data. Solid at normal temperatures.
Volatiles:	Nil at 100°C.
Vapour Pressure:	Nil at normal ambient temperatures.
Vapour Density:	Not applicable.
Specific Gravity:	No data.
Water Solubility:	Some, but not all ingredients are soluble.
pH:	No data.
Volatility:	Nil at normal ambient temperatures.
Odour Threshold:	No data.
Evaporation Rate:	Not applicable.

Coeff Oil/water Distribution: No data
Viscosity: Not applicable.
Autoignition temp: Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.
Conditions to Avoid: This product should be kept in a cool place, preferably below 30°C. Keep containers tightly closed. Containers should be kept dry. Keep isolated from combustible materials.
Incompatibilities: acids, alkali hydroxides.
Fire Decomposition: No significant quantities of decomposition products are expected at temperatures normally achieved in a fire. Sodium, lead, boron compounds.
Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Local Effects:
Target Organs: There is no data to hand indicating any particular target organs.

This product may cause heritable genetic damage. Women who are pregnant or who are likely to become pregnant in the near future should avoid using this product.

Disodium Tetraborate, Anhydrous is a SWA Class 2 Reproductive risk, may impair fertility.
This product is likely to cause decreased fertility in humans.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Sodium Carbonate	Conc>=20%: Xi; R41; R37

- Eye damage - category 1
- Specific target organ toxicity (single exposure) - category 3

Lead Monoxide — Conc>=5%: T; R40; R61; R62; R68; R33

- Carcinogenicity - category 2
- Germ cell mutagenicity - category 2
- Specific target organ toxicity (repeated exposure) - category 2
- Reproductive toxicity - category 1A

Disodium Tetraborate, Anhydrous — Conc>=4.5%: T; R60; R61

- Reproductive toxicity - category 1B

Lead exposure has been associated with increased risk of lung, stomach, and bladder cancer in diverse human populations. In studies of humans occupationally exposed to lead, there is evidence to suggest that lead damages chromosomes or DNA. In most studies, lead caused micronucleus formation, chromosomal aberrations, and DNA damage, but studies on sister chromatid exchange gave conflicting results. Genetic studies on humans environmentally exposed to lead also gave conflicting results. Lead did not cause mutations in bacteria, and results from test systems using mammalian cells were conflicting. A report may be found at http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s101lead.pdf

Potential Health Effects

Inhalation:
Short Term Exposure: This product is an inhalation irritant. Symptoms may include headache, irritation of nose and throat and increased secretion of mucous in the nose and throat. Other symptoms may also become evident, but they should disappear after exposure has ceased if treatment is prompt.
Long Term Exposure: No data for health effects associated with long term inhalation.

Skin Contact:
Short Term Exposure: This product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but if treated promptly, all should disappear once exposure has ceased.
Long Term Exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short Term Exposure: This product is a severe eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms such as swelling of eyelids and blurred vision may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment is likely to cause permanent damage.
Long Term Exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is toxic, but further symptoms are not available. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.
Long Term Exposure: Long term minor exposures to this product may cause serious health effects.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 12 - Ecological Information

Toxic to aquatic life.

For lead compounds **–** toxic to aquatic organisms (calc. Lead): fish lethal from 1.4mg/L
S. gairdnerii: LC_{50}: 0.14mg/L/96h
arthropod magna LC_{50}: 2.5mg/L
bacteria :Ps. Putida toxic from 1.8mg/L up
algae: Sc. Quadric from 3.7mg/L up hazard in drinking water

Section 13 - Disposal Considerations

Disposal: This product may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to separate the contamination in some way. Only if neither of these options is suitable, we suggest that you contact a specialist disposal company to arrange disposal. Disposal by untrained personnel may cause a dangerous incident.

Section 14 - Transport Information

Dangerous according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

UN Number: 2291, LEAD COMPOUND, SOLUBLE, N.O.S. (Lead monoxide).
Hazchem Code: 2Z
Special Provisions: 199
Limited quantities: ADG 7 specifies a Limited Quantity value of 5 kg for this class of product.
Dangerous Goods Class: Class 6.1: Toxic Substances.
Packing Group: III
Packing Instruction: P002, IBC08, LP02

Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.
The following ingredient: Sodium carbonate, is mentioned in the SUSMP.

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)
AICS	Australian Inventory of Chemical Substances
SWA	Safe Work Australia, formerly ASCC and NOHSC
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)

http://www.kilford.com.au/ Phone (02)9251 4532

Appendix D
CONSULTATION REPORT

The Public Consultation process consisted of three steps:

- Letters to the neighbours.
- Newspaper adverts.
- Stakeholder List consisting of authorities.

Letters to the neighbours.

The project locality called for the distribution of formal letters requesting input and BID's of the direct neighbours. First the potential neighbours were identified via Google Earth.

The letters /BID is shown on the following pages.

The letters/BIDs were then distributed by hand and records of the recipients kept during the period 25/08/2025 to 05/09/2025.

6

House no	Owner / tennant	Contact details	Signature
ERF 27 Kreek str	E. Mumbala	0814371165	

6

House no	Owner / tennant	Contact details	Signature
ERF 28	GRS Government	0814371165	
Erf 26	Nambol	0812892271	
Erf 27	Omaruru Hfdr Privskool	0812771874	

6

House no	Owner / tennant	Contact details	Signature
ERF 18	Frits A Jarab	0813290890	

No further comments were received via the neighbours.

Newspaper adverts.

The following newspaper adverts were place from 29/08/2025 to 09/09/2025.

Proof of the adverts are provided on the following pages

One response was received due to the newspaper adverts and is discussed in the comments received section. See details in the comments trail (next page).

Stakeholder List consisting of authorities.

The following Authorities were contacted.

Omaruru Town Council

Omaruru Police Office

Stakeholder List consisting of authorities.

The following Authorities were contacted.

Omaruru Town Council

Omaruru Police Office

Comments trail

RE: EIA Omaruru Lab

U uwe@gloriosa.com.na
To norman@envirod.com

Reply | Reply All | Forward | ...
Thu 18/09/2025 8:48 am

Follow up. Start by Thursday, 18 September 2025. Due by Thursday, 18 September 2025.
You replied to this message on 18/09/2025 9:49 am.
This message is part of a tracked conversation. Click here to find all related messages or to open the original flagged message.

Good morning, Norman,

You did not come back to me regarding the method.
I assume it will be Fire Assay.

Concern regarding Fire Assay is that it is very environmental unfriendly.

It produces about 0.31kg/sample hazardous waste, which entails airborne lead fumes and dust.
As Omaruru don't have a hazardous waste site what will happen to the waste.
1000 samples produce 310kg hazardous waste, if 5000 samples are analyzed per month it is 1.5tonnes of waste.

The amount of Energie is also extremely high, at 1.3kWh. How is this judgeable in the green environment Namibia strives to. Also, the CO2 emissions are 0.91kg/sample.

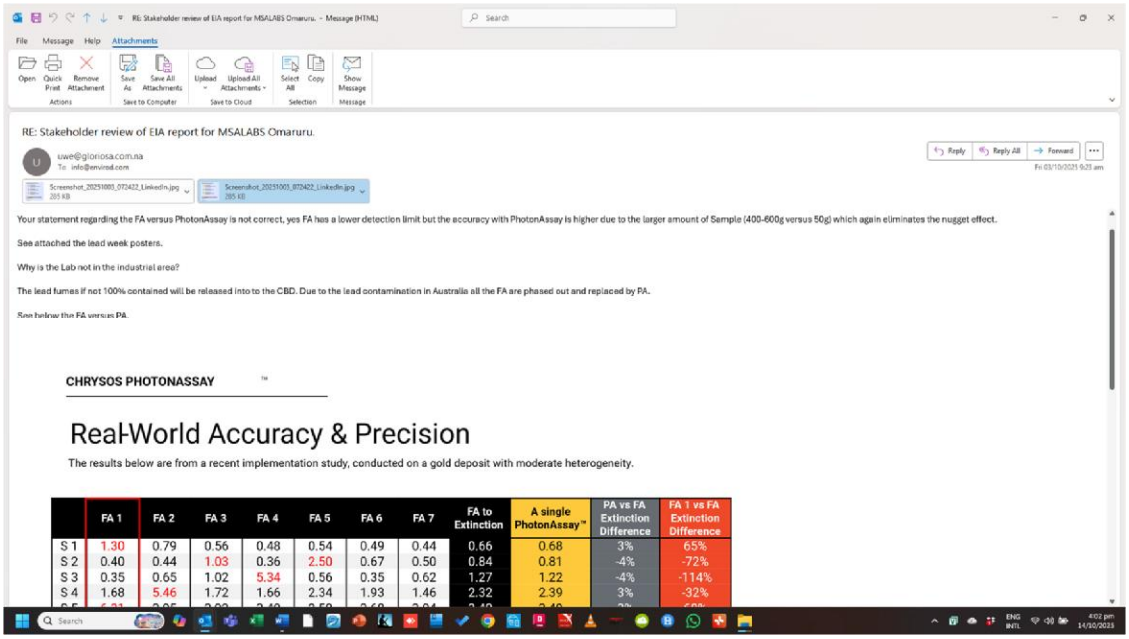
What mitigations are there if the industry in Namibia have already a more environmentally friendly and healthier ways of analyzing Gold.

Regards

The section related to project alternatives describes the constraints why the fire assay process is required for this specific project and laboratory.

Specific requirements are set for the management of the hazardous materials and disposal thereof in the EMP.

The final round of Public Comments on the Report solicited only one comment as recorded below:



RE: Stakeholder review of EIA report for MSALABS Omaruru.

uwe@gloriosa.com.na

Your statement regarding the FA versus PhotonAssay is not correct, yes FA has a lower detection limit but the accuracy with PhotonAssay is higher due to the larger amount of Sample (400-600g versus 50g) which again eliminates the nugget effect.

See attached the lead week posters.

Why is the Lab not in the industrial area?

The lead fumes if not 100% contained will be released into to the CBD. Due to the lead contamination in Australia all the FA are phased out and replaced by PA.

See below the FA versus PA

CHRYSOS PHOTONASSAY

Real-World Accuracy & Precision

The results below are from a recent implementation study, conducted on a gold deposit with moderate heterogeneity.

	FA 1	FA 2	FA 3	FA 4	FA 5	FA 6	FA 7	FA to Extinction	A single PhotonAssay™	PA vs FA Extinction Difference	FA 1 vs FA Extinction Difference
S 1	1.30	0.79	0.56	0.48	0.54	0.49	0.44	0.66	0.68	3%	65%
S 2	0.40	0.44	1.03	0.36	2.50	0.67	0.50	0.84	0.81	-4%	-72%
S 3	0.35	0.65	1.02	5.34	0.56	0.35	0.62	1.27	1.22	-4%	-114%
S 4	1.68	5.46	1.72	1.66	2.34	1.93	1.46	2.32	2.39	3%	-32%

The comment was reviewed, however the position of the laboratory was pre-determined and approved by the Omaruru Town Council, and all toxic emissions will be removed before clean air is released.

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Notices
• Legal •

workplace email address or both; (b) in the case of a close corporation, its name and registration number, postal address and registered office referred to in section 25 of the Close Corporations Act 1988 (Act No.26 of 1988) and the particulars referred to in paragraph (a) of at least one member or officer as defined in that Act and the particulars referred to in paragraph (a) of its accounting officer appointed in terms of section 59 of that Act; (c) in the case of a company, its name and registered number, postal address and registered office referred to in section 178 of the Companies Act 2004 (Act No. 28 of 2004) and the particulars referred to in paragraph (a) of at least one director and the secretary referred to in section 223 of that Act including all particulars referred to in section 223(1) of that Act and in case of the officer or secretary of any other body corporate the particulars referred to in paragraph (b) of section 223(1) of that Act; (d) in the case of any other juristic person,the particulars referred to in paragraph (a) of at least one officer or secretary or a person, by whatever name called, running its affairs; and (e) in the case of a trust which is duly authorised to litigate, the particulars referred to in paragraph (a) of all trustees and a reference number given by the master to the trust deed registered with the master."

3 The particulars provided in terms of item 2 remain binding on the party to which they relate and may be used by the court, or by the other party to effect service of any notice or document on such party or give notice to such party.

4 As soon as the managing judge has given notice of a case planning conference in terms of rule 23(1), he or she is required to meet with the plaintiff in order to agree a case plan in terms of rule 23(3) for submission to the managing judge for the exchange of pleadings, and the time within which he or she must deliver his or her plea and counterclaim, if any, will be determined by the court having regard to such plan and if he or she fails to cooperate in submitting such a plan, the court will determine the time within which he or she must deliver his or her plea and counterclaim, if any , and he or she must comply with such order. INFORM the defendant further that if he or she fails to file and serve notice of intention to defend judgment as claimed may be given against him or her without further notice to him or her or if, having filed and served such notice, he or she fails to plead, except, make application to strike out or counterclaim,judgment may be given against him or her. And immediately thereafter serve on the defendant a copy of this summons and return it to the registrar with whatsoever you have done thereupon. DATED at Windhoek on this 29th day of January 2025. ELIZABETH NDINELAO NASHIDENGO HOUSE NO. 285 LASURIT STREET, PARK FOODS KHOMASDAL, WINDHOEK, KHOMAS, Namibia TO:ELTON JOHN TJIUELLA FLAT NO. 303 TRIFT TOWERS, TRIFT STREET, WINDHOEK, KHOMAS, Namibia Authorize Code: oqC8kK AND TO:Registrar of the High Court Main Division Windhoek Registrar

PARTICULARS OF CLAIM

1. The PLAINTIFF is, ELIZABETH NDINELAO NASHIDENGO, a major female with Namibian ID number 86082500137, who is employed as a Lab Technician at Namibia University of Science and Technology and who resides at House No. 285 Lasuriet Street, Khomasdal, Windhoek, Khomas Region, Republic of Namibia. 2. The DEFENDANT is ELTON JOHN TJIUELLA, a major male with Namibian ID Number 750920 0058 9, whose whereabouts are currently unknown. 3. Both parties are domiciled within the jurisdiction of the above Honourable Court.

4. The parties were married to each other on 29 December 2017, at Windhoek, Khomas Region, in community of property and which marriage still subsists. A copy of the marriage certificate is attached hereto and marked as Annexure "A". 5. During the subsistence of the marriage between the parties, two minor children were born, to wit: 5.1. Sharaya Tjiuella, a minor female, born on 07 December 2021; and 5.2. Shekinah Tjiuella, a minor female, born on 07 December 2021. 6. It will be in the best interests of the minor children if custody and control are awarded to the Plaintiff, subject to the Defendant's right to reasonable access. 7.Prior to the conclusion of the marriage between herself and the Defendant, the Plaintiff purchased a townhouse located at Erf 6350, Unit 6, Madawas Haven, Madawas Street, Khomasdal, in the Municipality of Windhoek, Registration Division "K", Khomas Region, Republic of Namibia (hereinafter referred to as "the immovable property"). Accordingly, the immovable property was acquired by the Plaintiff in her sole capacity and at her sole financial risk and responsibility. A copy of the Title Deed is attached hereto and marked Annexure "B". 8.A mortgage bond was registered over the immovable property in favour of Standard Bank Namibia Limited as security for the payment of the purchase price. A copy of the Letter of Grant is annexed hereto and marked Annexure "C".

9.The immovable property is valued at N$965,000.00 (Nine Hundred Sixty-Five Thousand Namibia Dollars), as appears from the most recent valuation certificate, annexed hereto marked Annexure "D".

10.Throughout the duration of the marriage, the Plaintiff and Defendant never used the immovable property as their matrimonial home; instead, they resided in a separate rental property. 11.The Defendant made no direct or indirect contribution, financial or otherwise, towards the acquisition, bond repayments, or maintenance of the immovable property. Throughout the marriage, the Plaintiff solely carried the financial responsibility for the immovable property, including but not limited to: 11.1. Payment of the monthly instalments towards the mortgage bond; 11.2. Payment for the ongoing maintenance, repair, and general upkeep of the immovable property; 11.3. Payment of all municipal charges, including water, electricity, refuse removal, and property rates and taxes. 12.The Defendant's lack of contribution has resulted in him unduly benefiting from the Plaintiff's efforts and financial resources, and that it would be patently unjust for the Defendant to share equally in the estate, and particularly in the value of the said immovable property. 13.Furthermore, during the subsistence of the marriage between the parties, the Defendant wrongfully, maliciously and with settled intention to terminate the marriage between the parties, indulged in the following conduct: 13.1 . The Defendant has shown little to no affection or care for the Plaintiff, failing to provide emotional support or attention, resulting in the Plaintiff feeling neglected and unloved.

13.2 . The Defendant was frequently absent from the matrimonial home and did not take an active role in the care and maintenance of the household. The Plaintiff was left to manage the home and its needs without the Defendant's participation or assistance. 13.3 . The Defendant refused to engage in a normal marital relationship, depriving the Plaintiff of her conjugal rights and causing significant emotional distress. 13.4 . The Defendant engaged in emotional abuse and manipulation throughout the marriage, which caused significant harm to the Plaintiff's mental and emotional well-being. 13.5 . In the first year of the marriage, the Defendant physically assaulted the Plaintiff by slapping her in the face in the presence of the Plaintiff's first-born child. This incident caused the Plaintiff significant emotional harm and distress.

13.6. The Defendant's actions throughout the marriage were marked by constant arguments, which disrupted the Plaintiff's peace and caused her emotional and psychological harm. 13.7. The Plaintiff vacated the matrimonial home in or around June 2022 as a direct result of the Defendant's conduct, which rendered cohabitation intolerable.

14. In the premises, the Defendant has constructively, unlawfully, and maliciously deserted the Plaintiff, and such desertion persists to date. WHEREFORE PLAINTIFF CLAIMS AGAINST DEFENDANT FOR:

1.(a) An order for the restitution of conjugal rights and failing compliance therewith; (b) A Final Order of Divorce. 2. An order directing that:

2.1 Custody and control are awarded to the Plaintiff, subject to the Defendant's right to reasonable access;

2.2 The Defendant forfeit his share in the immovable property, on the basis that he would unduly benefit from the marriage were such forfeiture not ordered.

2.3 The remainder of the joint estate be divided in such a manner that each party retains the assets currently in their possession. 3. Costs of suit (only in the event of the action being defended). 4. Further and/or alternative relief. SIGNED and DATED at WINDHOEK on this 30th day of JUNE 2025. CATHERINE GONTES GONTES AND HAMUNYELA INCORPORATED LEGAL PRACTITIONERS FOR THE PLAINTIFF 5 HANDELSTRASSE WINDHOEK WEST WINDHOEK NAMIBIA (REF: PRI0010)

clao250002495

IN THE HIGH COURT OF NAMIBIA MAIN DIVISION – WINDHOEK CASE NO: HC-MD-CIV-ACT-CON-2024/04631 In the matter between: BANK WINDHOEK LIMITED EXECUTION CREDITOR and MANDY ROCHELLE STRAUSS EXECUTION DEBTOR NOTICE OF SALE IN EXECUTION Pursuant to Judgement of the above Honorable Court granted on 26th day of June 2025, the following immovable property will be sold without reserve and voetstoots by the Deputy Sheriff of Windhoek, at ERF NO. 2952 (EXTENSION NO. 2), SAUER STREET NO. 33, WINDHOEK, NAMIBIA on 23rd day of September 2025, at 10h00, of the undermentioned property. CERTAIN:ERF NO. 2952 WINDHOEK (EXTENSION NO. 2) SITUATE: IN THE MUNICIPALITY OF WINDHOEK REGISTRATION DIVISION "K" KHOMAS REGION MEASURING: 1367 (ONE THREE SIX SEVEN) SQUARE METRES HELD BY:UNDER DEED OF TRANSFER NO. T4496/2004 SUBJECT:TO ALL THE CONDITIONS CONTAINED THEREIN DESCRIPTION OF PERMANENT STRUCTURES / IMPROVEMENTS: Main dwelling including: Single Storey dwelling consisting of 1 x Entrance hall, 1 x Lounge, 1 x Kitchen, 3 x Bedrooms, Bath/basin/wc, 2 x Shower/basin/wc. Flat 1 Including: 1 x Bedrooms, 1 x Shower/basin/wc. Flat 2 Including: 1 x Bedrooms, 1 x Shower/basin/wc. Flat 3 Including: 1 x Kitchenette, 2 x Bedrooms, 1 x Shower/basin/wc Outbuilding including: 1 x Covered Stoep, 2 x Shade net carports. 1 x Swimming Pool. TERMS 10% of the purchase price and the auctioneers' commission must be paid on the date of the sale. The further terms and conditions of the sale will be read prior to the auction and lay for inspection at the office of the Deputy of Sheriff of the Court, Windhoek, and at the offices of the Execution Creditor's Attorneys. DATED at WINDHOEK this 12th day of August 2025. SHIKONGO LAW CHAMBERS LEGAL PRACTITIONERS FOR THE PLAINTIFF 4 BANTING STREET WINDHOEK-WEST WINDHOEK NAMIBIA

IN THE HIGH COURT OF NAMIBIA MAIN DIVISION – WINDHOEK CASE NO: HC-MD-CIV-ACT-CON-2024/04631 In the matter between: BANK WINDHOEK LIMITED EXECUTION CREDITOR and MANDY ROCHELLE STRAUSS EXECUTION DEBTOR CONDITIONS OF SALE IN EXECUTION OF IMMOVABLE PROPERTY In terms of Rule 110(6) (a) The property which will be put up to auction on the on the 23rd day of September 2025, at 09h00, consist of: CERTAIN:ERF NO. 2952 WINDHOEK (EXTENSION NO. 2) SITUATE: IN THE MUNICIPALITY OF WINDHOEK REGISTRATION DIVISION "K" KHOMAS REGION MEASURING: 1367 (ONE THREE SIX SEVEN) SQUARE METRES HELD BY:UNDER DEED OF TRANSFER NO. T4496/ SUBJECT:- TO ALL THE CONDITIONS CONTAINED THEREIN DESCRIPTION OF PERMANENT STRUCTURES / IMPROVEMENTS: Main dwelling including: Single Storey dwelling consisting of 1 x Entrance hall, 1 x Lounge, 1 x Kitchen, 3 x Bedrooms, Bath/basin/wc, 2 x Shower/basin/wc. Flat 1 Including: 1 x Bedrooms, 1 x Shower/basin/wc. Flat 2 Including: 1 x Bedrooms, 1 x Shower/basin/wc. Flat 3 Including: 1 x Kitchenette, 2 x Bedrooms, 1 x Shower/basin/wc Outbuilding including: 1 x Covered Stoep, 2 x Shade net carports, 1 x Swimming Pool. The sale is subject of the following conditions:

1.The property will be sold voetstoots, by the Deputy-Sheriff of Windhoek, ERF NO. 2952 (EXTENSION NO. 2), SAUER STREET NO. 33, WINDHOEK, NAMIBIA to the highest bidder without a reserve price. 2. The sale must be in Namibia Dollars, and no bid that is less than the reserve price determined in terms of rule 109(6)(a) will be accepted. 3. If the property to be sold is the primary home of a person/s, the highest bid must: a. Not be less than 75% of the regional or local authority council or land valuation of the property, and b. In the absence of a regional or local authority council or land valuation, not be less than 75% of a sworn valuation. 4. If any dispute arises about any bid the property may be again put up for auction. 5. If the auctioneer makes a mistake in selling, the mistake is not binding on any of the parties but may be rectified. If the auctioneer suspects that a bidder is unable to pay either the deposit referred to in condition 6 or the balance of the purchase price he or she may refuse to accept the bid of that bidder or accept it provisionally until that bidder has satisfied him or her that he or she is in a position to pay the balance of the purchase price. On the refusal of a bid under such circumstances, the property may immediately be put up for auction. 6. The purchaser must as soon as possible after the sale and immediately on being requested by the Deputy Sheriff, sign these conditions, and if he or she has brought qua qualitate state the name of his or her principal. 7. The purchaser must furnish the Deputy Sheriff, on his request, with proof of pre-approval of his/her/its loan. 8. The purchaser must pay a deposit of 10% of the purchase price in cash on the day of sale, the balance against transfer to be secured by a bank or building society guarantee, to be approved by execution creditor's legal practitioner, to be furnished to the deputy-sheriff within 14 days after the date of sale. 9. If transfer of the property is not registered by the conveyancers on behalf of the Execution Creditor, within one month after the sale, the purchaser is liable for payment of interest to the execution creditor/bondholder at the rate of 13% per annum on the respective amounts awarded to the execution creditor/bondholder in the plan of distribution as from the expiration of one month after the sale to date of transfer. 10. If the purchaser fails to carry out any of his or her obligations under the conditions of sale, the sale may be cancelled by a judge summarily on the report of the deputy-sheriff after due notice to the purchaser, and the property may again be put up for sale and the purchaser is responsible for any loss sustained by reason of his or her default, which loss may, on the application of any aggrieved creditor whose name appears on the deputy-sheriff's distribution account, be recovered from him or her under judgment of the judge pronounced summarily on a written report by the deputy-sheriff, after such purchaser has received notice in writing that such report will be laid before the judge for such purpose. 11. If the purchaser is already in possession of the property, the deputy-sheriff may, on seven days' notice, apply to a judge for an order ejecting him or her or any person claiming to hold under him or her therefrom. 12. The purchaser must pay auctioneer's charges on the day of sale and in addition, transfer duties, costs of transfer, and arrears rates, taxes and other charges necessary to effect transfer as well as VAT, if and when applicable, on request by the legal practitioner for the execution creditor. 13. The transfer of the property will be registered Dr Weder, Kauta & Hoveka Inc, on Dr Weder, Kauta & Hoveka Inc, 3rd Floor, WKH House, Jan Jonker Road, Windhoek, Telephone number: 061-275550, Fax number: 061-220533 swanepoel.convey3@wkh-law.com luvindao.litigation1@wkh-law.com Banking details: Bank Windhoek Main Branch Branch code: 481972 Account No: 1026643801 Reference: ML 7000487481

14. The property may be taken possession of immediately after payment of the initial deposit and is, after such deposit, at the risk and profit of the purchaser. 15. The purchaser may obtain transfer of the property forthwith if he or she pays the whole price and complies with condition 8, in which case any claim for interest lapses, otherwise transfer may be passed only after the purchaser has complied with the provisions of conditions 6, 7, 8 and 12. 16. The deputy-sheriff may demand that any buildings standing on the property sold must be immediately insured by the purchaser for the full value of same and the insurance policy handed to him or her and kept in force as long as the whole price has not been paid but if he or she does not do so, the deputy-sheriff may affect the insurance at the purchaser's expense. 17. The property is sold as represented by the title deeds and diagram annexed thereto, and the deputy-sheriff does not hold himself or herself liable for any deficiency that may be found to exist and renouncing all excess. 18. The property is also sold subject to all servitudes and conditions specified in the deed of transfer. 19. The purchaser shall at the purchaser's own costs make application for the obligatory Building Compliance Certificate from the Local Authority and the purchaser shall be liable to comply with the building compliance requirements of the Local Authority at the purchaser's own expense. 20. The purchaser shall furnish Dr Weder, Kauta & Hoveka Inc with a copy of the signed Conditions of Sale by fax or e-mail immediately after signature hereof. At this day of 2025 Deputy-sheriff I certify hereby that today the in my presence the hereinbefore-mentioned property was sold for to I, the undersigned, residing at in the district of do hereby bind myself as the purchaser of the hereinbefore-mentioned property to pay the purchase price and to perform all and singular the conditions mentioned above.

SIGNATURE OF PURCHASER
TELEPHONE NUMBER
E-MAIL ADDRESS

CLAO250002342

PETRUS LODEWIKUS LUDWIG AND CORRIE JULIA LUDWIG (IN SEQUESTRATION) MASTER'S REFERENCE NUMBER: W20/2020 Notice is hereby given that the special meeting of creditors in the above matter will be held before the Master of the High Court on 10 September 2025 at 10h00 for the following purposes:

• Proof of claims.

TRUSTEE:
A.P. VAN STRATEN
14 Perkin Street
PO Box 32098
Windhoek
Tel: 061-258438
Fax: 061-258453

CLAO250002501

PUBLIC NOTICE ENVIRONMENTAL IMPACT ASSESSMENT AND PUBLIC PARTICIPATION PROCESS Notice is hereby given to all potential Interested and Affected Parties (I&APs), that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following: Project: Rezoning of Portion 490(A portion of portion 21) of the Farm Brakwater No.38 from "Residential" to "Industrial" Project Description: Rezoning of Portion 490(A portion of portion 21) of the Farm Brakwater No.38 from "Residential" with a Density of 1:50 000 to "Industrial" with a bulk of 1.0 to allow for the development and operation of warehouse facility. Project Location: Portion 490(A portion of portion 21) of the Farm Brakwater No. 38, situated along Brakwater Road, Brakwater , Windhoek (Khomas Region) The Proponent: Alshani Property Development Group CC Registration of (I & APs): I & APs are kindly requested to register, submit questions and comments directed to the Public Participation Practitioner via e-mail on or before October 5, 2025. Public Meeting Date and Venue: 13 September 2025. Venue details will be communicated to all registered I&APs three (3) days prior to the meeting date. Public Participation Practitioner Tel: +264 817056071 Email:jeffame39@gmail.com

CLAO250002545

IN THE HIGH COURT OF NAMIBIA (Main Division) CASE NO.: HC-MD-CIV-ACT-CC :ter
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Notices
• Public •

ENVIRO DYNAMICS
Environmental Management Consultants

PROPOSED GEOCHEMICAL CHEMISTRY ANALYSIS LABORATORY OMARURU

MSALABS plans to develop a Geochemical analysis laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru.

The company appointed Enviro Dynamics to conduct an environmental impact assessment, in order to apply for an Environmental Clearence Certificate in terms of the Environmental Management Act (2007) and its Regulations (2012).

A scoping report will be prepared, listing and addressing all potential environmental and social impacts.

All interested and potentially affected parties are hereby invited to participate in this process, by e-mailing Norman van Zyl at **norman@envirod.com** before **15 September 2025**.

Participants will then receive the documents prepared for inputs.

CLAO250002537

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Notices
• Name Change •

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) LUTIYO LUTIYO ROMEO residing at ONGWEDIVA TOWN ERF 4797, ONGWE STREET and carrying on business / employed as (2) STUDENT intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume MAINGA for the reasons that (3) MY SURNAME ON MY CERTIFICATES FOR GRADE 11 AND 12 DOES NOT CORRESPOND WITH THE ONE ON MY ID AND BIRTH CERTIFICATE. I previously bore the name (s) (4) LUTIYO LUTIYO ROMEO I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A Any person who objects to my/ our assumption of the said surname of LUTIYO ROMEO MAINGA should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK DATE: 19/12/2024

CLAO250002430

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) NDATEELELA AISHE OIWA HANGO residing at ERF 1518, OMUKARU STREET, FREEDOMLAND, KATUTURA - WINDHOEK and carrying on business / employed as (2) MANAGER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume HANGHUWO-HANGO for the reasons that (3) I WOULD LIKE TO HAVE BOTH SURNAMES, (MY FATHER'S SURNAME AND MY HUSBAND SURNAME) AS HANGHUWO-HANGO ON MY IDENTIFICATE DOCUMENTS. I previously bore the name (s) (4) NDATEELELA AISHE OIWA HANGO I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A Any person who objects to my/ our assumption of the said surname of HANGHUWO-HANGO should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK MAGISTRATE COURT 01 AUGUST 2025.

CLAO250002433

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) LINA KAVAZEUA MUHENJE residing at OUKONGO OPUWO and carrying on business / employed as (2) PENSIONER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume TJIKOTOKE for the reasons that (3) MUHENJE IS MY EX HUSBAND SURNAME AND WE ARE NOW DIVORCED. I WANT TO ASSUME MY FATHER'S SURNAME TJIKOTOKE I previously bore the name (s) (4) LINA KAVAZEUA MUHENJE I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A To Any person who objects to my/ our assumption of the said surname of LINA KAVAZEUA TJIKOTOKE should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 07 AUGUST 2025

CLAO250002375

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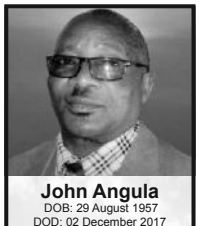
Obituaries
• In Memoriam •



John Angula
DOB: 29 August 1957
DOD: 02 December 2017

28 August 2025 marks 8 years since you left us our beloved father. Your unwavering love, guidance, and support shaped us into the people we are today.

Though you're no longer with us, your legacy lives on through the countless memories we shared, the lessons you taught, and the love you showed.

We cherish every moment we had with you and hold you close in our hearts, forever grateful for the time we had together.

Deeply missed by your Wife, Children, grandchildren and entire family

CLAO2500002548

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Notices
• Legal •

(EXTENSION NO 1), WALVIS BAY AND SECTION NO 45, OMARUNGA COURT, DA ES SALAAM STREET, ERF 3086 OTJOMUISE (EXTENSION NO 8), WINDHOEK, Namibia And TO:Registrar of the High Court Main Division Windhoek

IN THE HIGH COURT OF NAMIBIA (Main Division – Windhoek) CASE NO: HC-MD-CIV- ACT-CON-2023/03733 In the matter between: FIRST NATIONAL BANK OF NAMIBIA APPLICANT And ASSER ALPHATER SHANGADI RESPONDENT AFFIDAVIT IN SUPPORT OF RULE 108(1)(b) APPLICATION I, the undersigned, STEPHNE MARQUARD Do hereby make oath and say that:- 1 I am:-1.1 an adult female, by applicant as Manager: Collections and Recoveries, One Legal Department, at Windhoek; 1.2 I am duly authorised to depose this affidavit and to launch this application. The contents of this affidavit fall within my personal knowledge and are true and correct, unless the context indicates otherwise. Where I make legal submissions, I do so on the advice of the Applicant's legal counsel, which advice I believe to be true and correct. 1.3. The facts contained herein fall within my personal knowledge and are true and correct. THE PARTIES: 2. The Applicant is First National Bank of Namibia Limited, a public company duly incorporated as such and duly registered as a commercial bank in terms of the applicable laws of the Republic of Namibia with its principal place of business and registered address at Parkside, 130 Independence Avenue, 3rd Floor, First National Bank Head Office Building, Windhoek, Republic of Namibia. The Applicant is the Plaintiff under case number HC-MD-CIV-ACT-CON-2023/03733 and pursuant thereto the Execution Creditor. 3. RESPONDENT is ASSER ALPHATER SHANGADI an adult male having his chosen domicillium citandi et executandi at Section No 24, Praia de Lagosta, Erf 416, Orange Street, Langstrand (Extension No 1), Walvis Bay, and Section No 45, Omarunga Court, Da Es Salaam Street, Erf 3086 Otjomuise (Extension No 8), Windhoek, Republic of Namibia.4. The respondent is indebted to the applicant in the amount of N$1 552 239.21, together with interest and costs as set out in the judgement of the Honourable Court dated 20 May 2025. A copy of the said judgment of attached hereto and marked "A". **PURPOSE OF APPLICATION** 5. The Applicant brings this application in its "capacity" as Execution Creditor pursuant to case number HC-MD-CIV-ACT-CON-2023/03733 and seeks an order to declare the following immovable property specifically executable:
5.1. A unit consisting of:
a. Section No 24 as shown and more fully described on Sectional Plan No 30/2007 in the building known as Praia De Lagosta, in respect of the land and building or buildings, situate at Langstrand (Extension No 1), in

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Notices
• Legal •

the Municipality of Walvis Bay, Registration Division "F", Erongo Region, of which the floor area, according to the said Sectional Plan is 142 (One Four Two) square metres in extent; and b. an undivided share in the common property in the land and building or buildings as shown and more fully described on the said sectional plan, apportioned to the said section in accordance with the participation quota of the said section in a schedule endorsed on the said Sectional Plan. Held under Certificate of Registered Sectional Title No 30/2007(24)(Unit) dated 22 May 2007. 5.2. A unit consisting of: a. Section No 45 as shown and more fully described on Sectional Plan No 71/2012 in the development scheme known as Omarunga Court, in respect of the land and building or buildings, situate at Erf No 3086 Otjomuise (Extension No 8), in the Municipality of Windhoek, Registration Division "K", Khomas Region, of which the floor area, according to the said Sectional Plan is 67 (Six Seven) square metres in extent; and b. an undivided share in the common property in the development scheme, apportioned to the said section in accordance with the participation quota as endorsed on that Sectional Plan. Held under Sectional Deed of Transfer No ST37/2017 and subject to the conditions contained therein. 6. The respondent is the owner of the properties. Copies of the Title deeds No 30/2007(24)(Unit) and ST37/2017 are annexed hereto, marked "B" and "C" respectively. **RULE 108**
7. I am advised that to declare a certain immovable property specifically executable, the Applicant (in its "capacity" as execution creditor) must comply with two requirements, provided for in terms of Rule 108(1)(a) and (b), namely: 7.1. A return of service must have been made by the Deputy Sheriff wherein it appears that the Execution Debtor (in this case the respondent) does not have sufficient movable property to satisfy the writ of execution; and 7.2. The execution creditor must, subject to Rule 108(2), apply to have the immovable property be declared specifically executable. 8. In regards the requirements of Rule 108(2), I am informed that the process which is provided for in this rule only comes into play when the immovable property is the primary home of the judgement debtor. 9. On 11 June 2025 and 1 July 2025, respectively, the deputy sheriff for the district of Windhoek and Walvis Bay furnished the applicant with a nulla bona returns indicating that the judgment debtor has insufficient movable property to satisfy the writ. Copies of the writ and the nulla bona returns are annexed to this affidavit and marked as annexures "D1", "D2" and "D3". 6. On 12 August 2025, service of the notice in terms of Rule 108(2)(a) was attempted on the lessee/s at the bonded property, but the property is empty. Copies of that notice and of the return of non service are annexed hereto marked as "E1" and "E2". 7.

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• Legal •

On 14 November 2024 the Court granted the plaintiff leave the serve the Form 24 notice by way of substituted service. On 22 November 2024 the Rule 108(2)(a) (Form 24) notice was published in the newspapers, Republikein and Namibian. The tearsheets of the Republikein and Namibian are annexed hereto, marked "F1" and "F2". 10. In the circumstances the Applicant (Execution Creditor) has made out a case to declare the property, as more fully described in the notice of motion, specially executable. 11. Applicant therefore prays for an order as contemplated in Rule 108(1)(b) of the rules of this Court and as per the notice of motion filed herewith. STEPHNE MARQUARD I hereby declare that the deponent has sworn to and signed this statement in my presence at on the day of and she declared as follows: that the facts herein contained fall within her personal knowledge and that she understands the contents hereof; that she has no objection to taking the oath; that she regards the oath as binding on her conscience and has declared as follows:"I swear that the contents of this Sworn Affidavit are true and correct, so help me God."COMMISSIONER OF OATHS
FULL NAMES:
CAPACITY:
ADDRESS:
CLAO250002540

REZONING NOTICE:
Please note that the owner of Erf 132, Oshakati, intends to apply to Oshakati Town Council for:
- Rezoning of Erf 132, Oshakati from 'Single Residential' with a Density of 1;700 to 'General Business' with a 'bulk of 1'.
- Consent to commence development while the rezoning is being finalized.
Erf 132 is situated in Oshakati Proper. The erf is 938m² in extent and zoned 'Single Residential' with a density of 1:700. The proposed new zoning will allow the owner to construct a total of 4 units on the property. Access to the erf will be obtained from the existing entrance. Parking will be provided in accordance with the requirements of the Oshakati Town Planning Scheme. Further note that the locality plan of the erf lies for inspection on the Town Planning Notice Board at Oshakati Council Office Building, at 906 Sam Nuyoma Road, Oshakati. Further take note that any person objecting to the proposed use of land set out above may lodge such objection, together with the grounds therefore, with the Oshakati Town Council and with the applicant in writing within 14 days after the publication of this notice (final date for objections is 26 September 2025). Applicant: NamLand Town and Regional Planning & Environmental Management Consultants
PO Box 55160
Rocky Crest
/Contact details:
Tel: 061-213641
Cell:0812805501
Email: consultancy@namland.com.na
CLAO250002590

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• Public •

DK FREIGHT / NAUKLUFT ENERGY – NOTICE OF SALE OF IMPORTED BUILDING MATERIALS BY PRONTO GLOBAL AIR & OCEAN FREIGHT DUE TO NON PAYMENT OF INVOICES. SHOULD NAUKLUFT ENERGY / DK FREIGHT NOT COME FORWARD BY LATEST 30 SEPTEMBER 2025 TO CLAIM GOODS AND SETTLE INVOICE AMOUNT, GOODS WILL BE SOLD.
CLAO250002611

ENVIRO DYNAMICS
Environmental Management Consultants

PROPOSED GEOCHEMICAL CHEMISTRY ANALYSIS LABORATORY OMARURU

MSALABS plans to develop a Geochemical analysis laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru.

The company appointed Enviro Dynamics to conduct an environmental impact assessment, in order to apply for an Environmental Clearence Certificate in terms of the Environmental Management Act (2007) and its Regulations (2012).

A scoping report will be prepared, listing and addressing all potential environmental and social impacts.

All interested and potentially affected parties are hereby invited to participate in this process, by e-mailing Norman van Zyl at **norman@envirod.com** before **15 September 2025**.

Participants will then receive the documents prepared for inputs.

CLAO250002537

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Notices
• Name Change •

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) JOHNY ROBERT CONRADIE residing at HOME NO.282, BLOCK E, REHOBOTH and carrying on business / employed as (2) TEACHER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume ELYON for the reasons that (3) AS STATED ON POLICE DECLARATION, I WANT TO BE OBEDIENT TO GOD WHO HAS COMMANDED ME TO CHANGE MY SURNAME I previously bore the name (s) (4) CONRADIE I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A To Any person who objects to my/ our assumption of the said surname of ELYON should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 18 AUGUST 2025
CLAO250002474

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) IMMANUEL UIRAB residing at ERF 1208, EXT 4 -OSONA VILLAGE and carrying on business / employed as (2) ARTISAN AT AIR COOL CC 20 NGUNI STREET-NORTHERN INDUSTRIAL AREA intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume WITH THE SURNAME CHANGING-DE KLERK for the reasons that (3) MY FATHER DIED YEARS BACK AGO AND HE HAS NO GENERATION FOLLOWING HIS FAMILY NAME OR SURNAME UNDER HIS CHILDREN OR GRANDCHILDREN I previously bore the name (s) (4) IMMANUEL UIRAB I intend also applying for authority to change the surname of my wife: VEKAZUVA DINA DEE NDJAI and minor child (ren) (5) ANGELIQUE ABIGAIL IMMANUELLA UAHAHAURUA NDJAI To DE KLERK
Any person who objects to my/ our assumption of the said surname of DE KLERK should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 6 AUGUST 2025
CLAO250002511

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Notices
• Name Change •

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) WILSON OMWENETUUDA ABRAHAM residing at OSHAKATI and carrying on business / employed as (2) N/A intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume ABRAHAM for the reasons that (3) I WANT TO CHANGE FROM MY FATHER'S SURNAME TO MY FATHER'S FIRST NAME. I previously bore the name (s) (4) WILSON OMWENETUUDA HAFENANYE I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A To Any person who objects to my/ our assumption of the said surname of ABRAHAM should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 25/08/2025
CLAO250002520

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) TRESIA MARIA ASHIVUVI residing at OMUFITUWEELO - OMBALANTU and carrying on business / employed as (2) SENIOR CITIZEN intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume AKWENYE for the reasons that (3) IT IS MY ORIGINAL SURNAME I previously bore the name (s) (4) ASHIVUVI I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A Any person who objects to my/ our assumption of the said surname of AKWENYE should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK MAGISTRATE COURT DATE: 20 AUGUST 2025
CLAO250002467

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) ANTHONETHE GERTZE residing at ERF 678, EXTENSION 1, KARIBIB and carrying on business / employed as (2) PLANT ATTENDANT, QKR NAVACHAB GOLD MINE intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume GERTZE for the reasons that (3) WANT TO ASSUME FATHER'S SURNAME GERTZE I previously bore the name (s) (4) SALOME CATHY GORESES I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) SALOME CATHY GORESES To SALOME CATHY GERTZE Any person who objects to my/ our assumption of the said surname of SALOME CATHY GERTZE should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 27.08.2025
CLAO250002549

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) NDATEELELA AISHE OIWA HANGO residing at ERF 1518, OMUKARU STREET, FREEDOMLAND, KATUTURA - WINDHOEK and carrying on business / employed as (2) MANAGER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume HANGHUWO-HANGO for the reasons that (3) I WOULD LIKE TO HAVE BOTH SURNAMES, (MY FATHER'S SURNAME AND MY HUSBAND SURNAME) AS HANGHUWO-HANGO ON MY IDENTIFICATE DOCUMENTS. I previously bore the name (s) (4) NDATEELELA AISHE OIWA HANGO I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A Any person who objects to my/ our assumption of the said surname of HANGHUWO-HANGO should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK MAGISTRATE COURT 01 AUGUST 2025.
CLAO250002433

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) LUTIYO LUTIYO ROMEO residing at ONGWEDIVA TOWN ERF 4797, ONGWE STREET and carrying on business / employed as (2) STUDENT intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume MAINGA for the reasons that (3) MY SURNAME ON MY CERTIFICATES FOR GRADE 11 AND 12 DOES NOT CORRESPOND WITH THE ONE ON MY ID AND BIRTH CERTIFICATE. I previously bore the name (s) (4) LUTIYO LUTIYO ROMEO I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) N/A Any person who objects to my/ our assumption of the said surname of LUTIYO ROMEO MAINGA should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK DATE: 19/12/2024
CLAO250002430

THE ALIENS ACT, 1937 NOTICE OF INTENTION OF CHANGE OF SURNAME I, (1) CHRISHELDA LIS SKRYWER residing at ERF 9166, MUNGUNDA STREET, SMARTIES and carrying on business / employed as (2) TEACHER intend applying to the Minister of Home Affairs for authority under section 9 of the Aliens Act, 1937, to assume FREDERICK for the reasons that (3) I WANT TO ASSUME MY FATHER'S SURNAME WHICH IS FREDERICK. I previously bore the name (s) (4) CHRISHELDA LIS SKRYWER I intend also applying for authority to change the surname of my wife N/A and minor child (ren) (5) 1. CHRISTO LUIS MERSHELDO SKRYWER 2. AIO-A EL'SHADDAI SOPHIA SKRYWER To FREDERICK Any person who objects to my/ our assumption of the said surname of FREDERICK should as soon as may be lodge his/her objection, in writing, with a statement of his/her reasons therefore, with the Magistrate of WINDHOEK Date: 15/08/2025.
CLAO250002602

6000
Obituaries
• In Memoriam •

In Loving Memory

CPO Josefine "Jorsie" Nghifitikeko
28 October 1953
05 September 2006

Today marks 19 years since the gates of heaven opened for you, our beloved mother.

Your boundless love, gentle guidance, and unwavering support continue to shape who we are.

Though no longer with us in person, your spirit lives on in the memories we cherish, the lessons you taught, and the love you so freely gave.
We hold you close in our hearts, forever grateful for the gift of your life.

Deeply missed by your children, grandchildren, and the entire family.

CLAO250002607

Gerson Mbangula Ndaningina
Sunrise 24 March 1956
Sunset 29 August 2025

Memorial service
12 Sep. 2025
Burial 13 Sep. 2025
Okalongo, Onandjaba

Contact:
Daniel Ndaningina
0811248982
DR. Vapa-Oukeka Haikali
0852784420

My peace I give to you
John 14:27

CLAO250002608

Obituaries
• In Memoriam •

In memoriam

Saima Namadhila Kuume
Sunrise: 04/03/1962
Sunset: 05/09/2017

Today marked exactly 8 years since your departure.
We think about you always, we talk about you still,
you have never been forgotten and you never will.

We hold you close within our hearts, and there you will always remain.
To walk and guide us through our lives, until we meet again.

2 Timothy 4 verse 7

Your greatly missed by your children and entire family.

CLAO250002614

Market Watch Kleinadvertensies • Classifieds

SPERTYE: 13:00 TWEE WERKSDAE VOOR PLASING
DEADLINES: 13:00 TWO WORKING DAYS PRIOR TO PLACEMENT
Geen advertensies sal telefonies aanvaar word nie.

TEL: 061*297 2175 **FAX: 061*239 638**
EMAIL: classified2@synergi.com.na
No advertisements will be accepted telephonically.

INHOUDSOPGAWE / CONTENTS

RATES & DEADLINES

To avoid disappointment of an advertisement not appearing on the date you wish, please book timeously. Classified smalls, notices and display smalls: 13:00, two working days prior to placing.
A handling fee of 15% is payable on cancellations received in writing by 13:00 two days before scheduled publication. No cancellation will be accepted if received after this deadline.

RATES:
(Monday * Friday)
- Classifieds Smalls: N$135.36 for the first 20 words and N$2.15 (15% Vat included) for every word thereafter
- Display Smalls: N$153.07 per col/cm (15% Vat included)
- School notices: N$115.05 (15% Vat included) per col/cm
- Churches: N$115.05 (15% Vat included) per col/cm
- Sport Clubs: N$115.05 (15% Vat included) per col/cm
- Births, engagements, marriages, deaths, In memoriam: N$115.05 (15% Vat included) per col/cm
- Legal Notices: N$903.21 for the first 300 words and N$2.40 (15% Vat included) for every word thereafter

CONDITIONS OF ACCEPTANCE:
Republikein reserves the right to withhold or cancel any advertisement order that has been accepted. Republikein accepts no liability for failure to publish an advertisement received by telephone.

ERRORS:
Please report errors immedi*ately. Republikein accepts no responsibility for more than one incorrect insertion of any advertisement of any cost beyond the cost of the space occupied by the faulty advertisement. No re*publication will be given due to small typographical errors which do not lessen the effectiveness of the advertisement. Republikein does not accept responsibility for misrepresentation in advertisements.

TODAY IS... WORLD BEARD DAY

A distinguishing feature of masculinity, beards can offer a sense of ruggedness or refinement depending on the style. The beard has been the ultimate symbol of manliness since time out of mind. Close trimmed, full, or properly manicured, even wild and bushy and out of control, the beard stands supreme in the world of masculinity. In fact, in many cultures, the beard has often been a representation for many masculine virtues, including wisdom, strength, high social status and even sexual prowess, especially in warrior cultures.

009 Vakatures / Vacancies

HORSEMANSHIP GUEST RELATIONS MANAGER
We are looking for a qualified head tainer to join our project team for a new and exiting development..
- 7 years experience in horsemanship guest relations management.
- Diploma in Equine Psychology.
- Diploma in Gemology.
- Diploma in Accounting and Taxation. - Diploma in horse care and management. - Experience in Equine Nutrition. - Experience in Equine First Aid Training.
- Excellent communication and training skills. - Strong ability to work with local Namibians.
- Fluent in English

Written applications may be addressed to: magdacooper21@gmail.com Namibian Farmers Logistical Services (Pty) Ltd
DM0202500422651

VACANCY: OBSESIVE MEDIA
CC: Position: Creative Producer / Executive Producer – Windhoek.
We are looking for a multilingual and internationally experienced Creative Producer / Executive Producer to lead and deliver high-quality media projects across film, journalism, and multimedia. With a strong editorial background, a proven track record in directing and producing, and experience managing creative teams, the ideal candidate will bring both strategic vision and hands-on expertise to our productions.
Key Responsibilities:
Oversee the planning, production, and delivery of documentaries, journalistic features, and multimedia projects.
Manage production schedules, budgets, and creative resources efficiently, Lead and mentor small- to mid- sized production teams (up to 10 people).
Successfully pitch media productions to international clients, especially from Germany.
Collaborate with international clients and broadcasters to ensure creative and editorial standards are met. Contribute to the development of concepts, scripts, and innovative storytelling approaches.
Directing of video shoots.
Ensure ethical storytelling, cultural sensitivity, and editorial integrity across all productions.
Conceptualise trainings and deliver workshops for emerging media professionals. Required Profile Bachelor's degree in Journalism, Media, Film, or a related field, 5+ years of professional experience in journalism, filmmaking, and media production - ideally in Germany, Namibia and internationally
(South Africa
advantageous) Strong background in both directing and producing, with additional expertise in media training and team leadership.
Proven ability to manage international projects and client relations. Native proficiency in German and English; intermediate level in French. Excellent organizational, editorial, and communication skills.
Ability to work in diverse, fast-paced, and cross-cultural environments.
Strong leadership and problem-solving abilities with a collaborative, hands-on approach.
What We Offer,
The opportunity to lead impactful media projects with international reach. Collaboration with a diverse and creative team.
A dynamic role balancing strategic leadership and creative execution.
Hybrid work options and the chance to engage with both local and global partners.
Closing Date 16 September 2025.
All suitably qualified and experienced Namibian citizens are encouraged to apply. Your experience in the required career path will be considered for the specialized role. Should you meet the qualifications and experience requirements, kindly submit a comprehensive curriculum Vitae, or resume with certified documents on the NIEIS at https: nieis.namibiaatwork.gov.na/
DM0202500422661

009 Vakatures / Vacancies

Bocian Safaris is seeking a fluent polish speaking guide from the 01 October 2025. The applicant should have an experience and relevant qualification to be able to work independently and team orientated. Background in wildlife photographer and astrography would be an added advantage. The applicant should be a Namibian citizen.Only shortlisted candidates will be contacted. Please send all Applications with CV to: info@bociansafari.com
P.O Box 2822 Walvis Bay
DM0202500422654

JOB VACANCY: Reverse Osmosis Maintenance Technician
Company: H2GO Water Namibia
Location: Windhoek
Closing Date for Applications: 18 September 2025
Email Applications to: windhoek@h2gowater.co
H2GO Water Namibia is a forward-thinking company dedicated to delivering innovative and sustainable water purification solutions.
We are seeking a skilled and experienced Reverse Osmosis Maintenance Technician to join our technical team and support the operation of our advanced water treatment systems. Key Responsibilities:
Perform routine and emergency maintenance on reverse osmosis (RO) systems and associated equipment. Monitor system performance and conduct diagnostics to identify and resolve issues.
Implement preventative maintenance schedules and maintain detailed service records.
Ensure compliance with safety and environmental standards.
Provide technical support and training to junior staff and clients.
Minimum Requirements:
Diploma in Reverse Osmosis Technology, Aqua Process Engineering, or a related field.
Minimum of 3 years' hands-on experience in the maintenance and operation of industrial reverse osmosis systems. Proven expertise in troubleshooting RO systems, pumps, membranes, and control panels. Familiarity with water quality standards and treatment protocols. Ability to work independently and in remote environments.
Strong communication and reporting skills.
Desirable Attributes:
Experience working in international or cross-border water treatment projects. Knowledge of automated control systems and SCADA integration. Commitment to sustainability and innovation in water technologies.
Interested candidates should submit their CV and relevant qualifications to windhoek@h2gowater.co no later than 18 September 2025.
DM0202500422655

035 Regskennisgewings / Legal Notices

NOTICE OF THE CONSENT APPLICATION IN TERMS OF THE RUNDU TOWN PLANNING SCHEME CONSENT: Consent to operate Tree house Kindergarten 1549 TOWNSHIP / AREA Tutungeni ON ERF NO:STREET NAME &
NO.:In terms of the Rundu Town Planning Scheme, notice is hereby given that I/we, the undersigned,have applied to
the Rundu Town Council for permission to erect/establish on the site a/an*:Pre-School Plans may be inspected or particulars of this application may be obtained at Town Planning, Office Room A-18, Maria Mwengere Road GRN
Office Any person having any objection to the approval of this application, must lodge such objection,together with
grounds thereof, with the Chief Executive Officer:
(Rundu Town Council),
Private Bag 2128, Rundu and the applicant, in writing,
not later than 14 September 2025.
NAME OF APPLICANT: Tree house Academy POSTAL ADDRESS: P.o. Box 1692
E-MAIL ADDRESS.: info@thcreche.org
DM0202500422658

035 Regskennisgewings / Legal Notices

NOTICE OF THE CONSENT APPLICATION IN TERMS OF THE RUNDU TOWN PLANNING SCHEME CONSENT:
Consent to operate Tree house Kindergarten 1559 TOWNSHIP / AREA Tutungeni ON ERF NO:STREET NAME &
NO.: In terms of the Rundu Town Planning Scheme, notice is hereby given that I/we, the undersigned,have applied to the Rundu Town Council for permission to erect/establish on the site a/an*:Kindergarten Plans may be inspected or particulars of this application may be obtained at Town Planning, Office Room A-18, Maria Mwengere Road GRN
Office Any person having any objection to the approval of this application, must lodge such objection,together with
grounds thereof, with the Chief Executive Officer:
(Rundu Town Council),
Private Bag 2128, Rundu and the applicant, in writing,
not later than 14 September 2025
NAME OF APPLICANT: Tree house Academy POSTAL ADDRESS: P.o. Box 1692 E-MAIL ADDRESS.: info@thcreche.org
DM0202500422659

ERATUUM Please take note of the following:
Plan Africa Consulting CC placed an advertisement in the NHE Market Watch (Republican, The Sun, and Allgemeine Zeitung) on the 11th and 18th of June 2025. The notice was published as follows:
Rezoning of Erf 967, Pionierspark, Gous Street, from Residential with a density of 1:900 to Hospitality, for the purpose of establishing a hotel pension comprising 13 rooms; and
Consent to use Erf 967, Pionierspark, Gous Street, for the purpose of a shop, conference centre, and restaurant.However here follows a correction of the existing density, 1 dwelling unit per 500 and not 1/900.The notice
should have read as follows:
Rezoning of Erf 967, Pionierspark, Gous Street, from Residential with a density of 1:500 to Hospitality, for the purpose of establishing a hotel pension comprising 13 rooms; and?
Consent to use Erf 967, Pionierspark, Gous Street, for the purpose of a shop, conference center, and restaurant.
Please provide your comments accordingly, by the 5th of September 2025 PLAN AFRICA CONSULTING CC TOWN and Regional Planners
Box 41148 Delius Street
Windhoek (West)
Tel: (061) 212096 Cell: 0812716189
Fax: (061) 213051
Email:pafrica@mweb.com.na
DM0202500422665

NOTICE OF APPLICATION TO A COMMITTEE IN TERMS OF THE LIQUOR ACT, 1998 (Regulations 14, 26 & 33) Notice is given that an application in terms of the Liquor Act, 1998, particulars of which appear below, will be made to
the Regional Liquor Licensing Committee, Region: Kunene
1. Name and postal address of applicant: Ryno du Plessis P.O box 3989
2. Name of business or proposed business to which application relates: Oppi Stoep
3. Address/location of premises to which application relates: Plot 139+140
4. Nature and details of application: APPLICATION FOR A RESTAURANT LIQUOR LICENCE.
5. Clerk of the court with whom application will be lodged: Outjo
6. Date on which application will be lodged: 1 October 2025
7. Date of meeting of Committee at which application will be heard: 12 November 2025
Any objection or written submission in terms of section 28 of the Act in relation to the application must be sent or delivered to the Secretary of the Committee to reach the Secretary not less than 21 days before the date of the meeting of the Committee at which the application will be heard.
DM0202500422660

ENVIRO DYNAMICS
Environmental Management Consultants

PROPOSED GEOCHEMICAL CHEMISTRY ANALYSIS LABORATORY OMARURU

MSALABS plans to develop a Geochemical analysis laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru. The company appointed Enviro Dynamics to conduct an environmental impact assessment, in order to apply for an Environmental Clearence Certificate in terms of the Environmental Management Act (2007) and its Regulations (2012). A scoping report will be prepared, listing and addressing all potential environmental and social impacts. All interested and potentially affected parties are hereby invited to participate in this process, by e-mailing Norman van Zyl at norman@envirod.com before 15 September 2025. Participants will then receive the documents prepared for inputs.

Economic Indicators

Exchange Rates *Forward Cover*

Currency	Spot	Currency	Spot	Currency	1M	3M	6M	12M
USD/NAD	17.596	NAD/AUD	0.087	USD/ZAR	17.757	17.766	18.236	17.82
EUR/NAD	20.617	NAD/NZD	0.096	EURO/ZAR	20.691	20.264	19.743	19.761
GBP/NAD	23.765	NAD/BWP	0.822	GBP/ZAR	23.889	24.05	23.544	23.406
NAD/CHF	0.045	NAD/JPY	8.373	ZAR/JPY	8.326	8.135	8.109	7.985

**Effective rate (withholding tax still to be applied)*

DATE: 08/09/2025- 12:16 PM

COMPANY NEWS IN BRIEF

EU SLAPS U$3.45BN FINE ON GOOGLE

The European Union has imposed a penalty of €2.95 billion on Google for favouring its own advertising services, marking the fourth time the tech giant has been fined in its decade-long fight with the bloc's competition regulators.

The European Commission accused Google of distorting competition in the 27-nation bloc after investigating a complaint from the European Publishers Council, moving to rein in the tech firm despite threats of retaliation from United States President Donald Trump.

In response to the fine against Google on Friday, Trump criticised the decision and threatened a wider trade probe against the EU.

"We cannot let this happen to brilliant and unprecedented American Ingenuity and, if it does, I will be forced to start a Section 301 proceeding to nullify the unfair penalties being charged to these Taxpaying American Companies," Trump wrote on Truth Social.

EU competition chief Teresa Ribera had originally planned to hand out the fine on Monday, but delayed her move after meeting opposition from EU trade chief Maros Sefcovic over concerns about the potential impact on US promises to lower tariffs on European cars under a trade deal agreed in July.

The Commission said Google favoured its own online display technology services to the detriment of rivals and online publishers and that it has abused its market power from 2014 until today.

"Google abused its dominant position in adtech, harming publishers, advertisers, and consumers. This behaviour is illegal under EU antitrust rules," Ribera said on Friday. - Al Jazeera

SARS COMMISSIONER URGES SOCIAL INFLUENCERS TO DECLARE INCOME

The South African Revenue Service (SARS) has clarified how social media influencers must declare their income, stressing that all earnings, including cash, products, services, and perks, are taxable

IOL previously reported that South African social media influencers are being warned to get their tax affairs in order, as SARS is investigating undeclared income earned through online content creation and partnerships.

The news sparked concern among many influencers, who argued that understanding tax obligations can be confusing, especially for those new to the digital economy or earning non-cash benefits.

In a statement issued to the media on Friday, the revenue service said it recognises social influencers as a distinct taxpayer segment and is committed to providing clarity and support to help them meet their tax obligations

"When managing this segment, SARS will handle each such situation on a case-by-case basis according to current income-tax brackets. Some of these cases may generally fall into the provisional taxpayer category".

"For each of these segments, SARS has an engagement model whose first step is to provide clarity and certainty and to make it easy for taxpayers to comply. We work with and through stakeholders and partners to deliver SARS's mandate". – iol.co.za

The European Union has imposed a penalty of €2.95 billion on Google for favouring its own advertising services.
PHOTO UNSPLASH

US ADDS 22 000 JOBS IN AUGUST AS LABOUR MARKET STALLS

The United States labour market has begun to stall as employers face economic uncertainty due to tariffs imposed by US President Donald Trump and an immigration crackdown that has softened the labour pool.

The economy added 22 000 jobs in August, while the unemployment rate rose to 4.3 per cent, according to the report published by the US Department of Labour on Friday, the latest sign of slowing momentum in the labour market.

Healthcare added 31 000 jobs and social assistance 16 000, making them the only sectors to see significant gains.

Smaller increases were reported in construction, retail, professional and business services, and leisure and hospitality. Those advances were offset by losses in other areas, including 15 000 federal government jobs, 12 000 in manufacturing, and 6 000 in oil and gas extraction.

"Another poor jobs report thanks to tariffs. With the benefit of revisions, it's increasingly clear that tariffs are weighing on hiring and jobs. Manufacturing jobs are falling sharply, and so are other trade-sensitive sectors like mining and wholesale trade," said Skanda Amarnath, executive director of Employ America and a former Federal Reserve economist, in a note provided to Al Jazeera. - Al Jazeera

CAN R1BN FUNDING BREAKTHROUGH NEGATE TRADE CHALLENGES?

Small and medium businesses in South Africa are set to benefit from a new R1 billion financing model.

South Africa has around three million medium, small, and micro-entrepreneurs, employing around 13.4 million people, according to FinScope.

Although the sector has an estimated turnover of over R5 trillion and accounts for 80% of the workforce, companies classified as medium, small, and micro-entrepreneurs are often financially excluded, underscoring the necessity for targeted interventions, FinScope said.

Almost R1 billion has now been unlocked for SMEs through a new financing model that blends state and pension fund capital, said Miguel da Silva, group executive of Business Banking at TymeBank.

"A collaboration between National Treasury and the pension fund industry has successfully mobilised almost R1 billion for SME financing, suggesting a scalable model for addressing South Africa's persistent funding gap," Da Silva said.

The initiative leverages R90 million from the National Treasury's Jobs Fund to attract R900 million from pension funds through an innovative risk-mitigation structure.

National Treasury's "10% buffer effectively transforms the risk profile of SMME lending, making it palatable for institutional investors managing R19.8 trillion in household wealth," Da Silva said. – iol.co.za

ENVIRO DYNAMICS
Environmental Management Consultants

PROPOSED GEOCHEMICAL CHEMISTRY ANALYSIS LABORATORY OMARURU

MSALABS plans to develop a Geochemical analysis laboratory on Erf 31 and 32, c/o Skool and Sending Streets, Omaruru. The company appointed Enviro Dynamics to conduct an environmental impact assessment, in order to apply for an Environmental Clearence Certificate in terms of the Environmental Management Act (2007) and its Regulations (2012). A scoping report will be prepared, listing and addressing all potential environmental and social impacts. All interested and potentially affected parties are hereby invited to participate in this process, by e-mailing Norman van Zyl at norman@envirod.com before 15 September 2025. Participants will then receive the documents prepared for inputs.

Appendix C
Waste Management Plan

MSALABS

DOCUMENT TITLE: WASTE MANAGEMENT PLAN_OMARURU

DOCUMENT NUMBER: MSA-ENV-PXXX

REVISION NUMBER: 000

APPROVED:

Approval on file	*June 13, 2025*
GLOBAL HSEC MANAGER, MSALABS	Date
Approval on file	*June 13, 2025*
LABORATORY MANAGER	Date

Website: http://www.msalabs.com

MSALABS
EVERY SAMPLE SAFELY MEASURED
EVERY RESULT RELIABLY DELIVERED

DOCUMENT APPROVAL

APPROVALS	NAME	SIGNATURE	POSITION	DATE:
PREPARED BY	XXXX		XXX	XXX
REVIEWED BY	XXX		Global HSEC Manager	XXX
APPROVED BY	XXX		Operations Manager	XXX

AMENDMENTS LIST

REV #	DATE	SECTION NUMBER(S)	SECTION NAME	COMMENT
000	June 13, 2025	All	All	Draft for submission to Municipality for comment

MSALABS
EVERY SAMPLE SAFELY MEASURED
EVERY RESULT RELIABLY DELIVERED

Contents

1. PURPOSE

This Waste Management Plan ensures MSALABS complies with MSALABS HSEQ Management System standards and Namibian environmental legislation, prioritizing waste reduction, reuse, or repurposing.

Key elements include identifying waste streams in MSALABS operations to reduce waste production. This plan outlines the duties of **MSALABS Omaruru** operations, identified waste streams, and measures to minimize and control potential adverse environmental impacts.

2. SCOPE

This Waste Management Plan is applicable to our operations at Erf 31 & 32, Extension 12 Omaruru main road, Corner of Sending street and Wilhelm Zeraua road, Omaruru, Erongo, Namibia.

Major activities of the laboratory include:

- Geochemical / Fire Assay Analysis,
- Light vehicle and trucks supporting operations,
- Operation and maintenance of laboratory equipment.
- Waste generated by operations, storage, transportation and disposal of sample rejects, pulps and chemical waste.

Statutory and permitting requirements will take precedence over MSALABS standards, except in those cases where MSALABS standards are more stringent. The participation of all interested and affected parties will be promoted and decisions will consider the interest, needs and values of interested and affected parties.

Limitations: This Waste Management Plan has been prepared with consideration of the following limitations:

The document was compiled according to the project information provided. The mitigation measures recommended herein are based on the potential impacts identified from the project description, site investigation, and documents related to similar activities globally. Should the scope of the proposed project change, appropriate mitigation measures will be provided accordingly.

3. RESPONSIBILITIES

Laboratory Manager, Supervisors and HSE Officers	• Daily leadership and management of MSALABS employees and operations. • Ensuring that there is enough bins and the correct bins for disposal of the various waste streams. • Ensuring that waste segregation is adhered to. • Responsible for implementing and enforcing the waste management plan, including identifying waste streams, promoting recycling and reuse, and ensuring compliance with regulations. • Undertake Safety Risk Leadership Walks and all required inspections which are intended to identify hazards and poor behavior associated with the work environment and task at hand, which may have an adverse effect on the environment. • Ensure employees are correctly using PPE provided when handling waste. • Ensure that all waste manifests are obtained and kept on record and that waste is disposed of according to legislative requirements. • Ensure that there is a legal contract between MSALABS and the hazardous waste disposal company.
Employees and Contractors	• Employees should ensure and promote environmental management in their actions, both on the job and elsewhere on site. • Identify environmental aspects and implement risk management activities such as Hazard/Near Miss Reporting, Take-5 Pre-Task Risk Assessments, and JSA for new or special tasks. • Report all environmental incidents, including accidents and near misses. • Comply with relevant guidelines provided through inductions, toolbox meetings, and site instructions at all times. • Wear the appropriate PPE when handling waste. • Follow the site waste management plan.
Waste Disposal Companies	• Responsible for the safe and efficient transportation of waste to designated disposal or processing facilities. • Ensuring waste disposal complies with legislation and providing MSALABS with records for verification.

4. COMPLIANCE TO LEGAL AND OTHER REQUIREMENTS

MSALABS shall at all times ensure that our activities are conducted in compliance with legal requirements. We will abide by the following legal framework, which is not limited to:

- The Environmental Management Act No. 7 of 2007
- Environmental Impact Assessment Regulations (2012)
- Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)
- The Constitution of the Republic of Namibia
- Water Resources Management Act (No 11 of 2013) and its 2023 Water Regulations
- Forestry Act 12 of 2001, Amended Act 13 of 2005
- Nature Conservation Ordinance No. 4 of 1975 (as amended)
- Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)
- National Heritage Act (Act No. 27 of 2004)
- 1992 Convention on Biological Diversity (Biodiversity Convention)
- 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora
- the 1992 United Nations Framework Convention on Climate Change
- ISO 14001:2015 Environmental Management Standard
- ISO 14064-2 Quantifying GHG emissions of specific projects
- International Convention on Civil Liability for Oil Pollution Damage, 1969
- Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972
- World Heritage Convention, 1975
- Vienna Convention for the Protection of the Ozone Layer, 1985
- Basel Convention on the Control of Transboundary Movements of Hazardous
- Wastes and their Disposal, 1989
- Framework Convention on Climate Change, 1992
- Convention on Biological Diversity, 1992
- Convention to Combat Desertification in those Countries Experiencing Serious
- Drought and/or Desertification, Particularly in Africa, 1994
- SADC Protocol on Shared Watercourse Systems in the Southern African Region,
- SADC Protocol on Wildlife Conservation and Law Enforcement, 1999
- Cartegena Protocol on Biosafety, 2000

5. RELATED FORMS AND PROCEDURES

- MSA-FAS-P002 Fire Assay Fusion of Samples
- MSA-FAS-P003 Cupellation of Samples by Fire Assay
- MSA-FAS-P007 Fire Assay Gold Digestion
- MSA-LOG-P003 Drying Mineral Sample
- MSA-PRP-P001 Crushing of Sample
- MSA-PRP-P002 Pulverization of Mineral Samples
- MSA-GEO-P001 Dissolution of Mineral Sample using A-4 Acid Digestion
- MSA-SPY-P007 Multi-element Determination by Inductively Coupled Plasma Atomic Emission Spectrometry
- MSA-ADM-F059 Baseline Risk Assessment
- MSA-OHS-F031 Waste Management Register
- MSA-FAS-F002 Flux Addition and Crucible Discard Sheet
- MSA-LAB-F007 Neutralized Water Waste Disposal Log

6. PROCEDURE

6.1 Waste Audit

A waste audit must be conducted to identify the types and volumes of each waste material generated on site. This audit will assess the quantity and type of waste produced daily over a calendar month. It is essential that key personnel are available to provide their input.

6.2 Identify Waste Streams

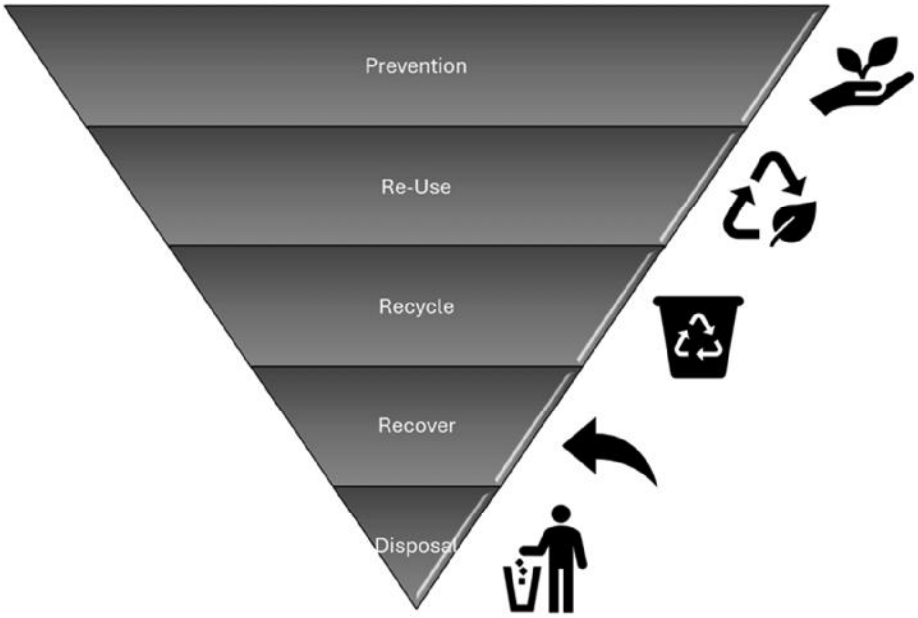
Waste streams refer to materials that are discarded and can originate from multiple sources, including residential, industrial, and commercial sectors. These streams may arise from office environments, laboratory activities, and construction projects, leading to various waste categories. Different types of waste include organic, recyclable, hazardous, and general waste, each necessitating specific management strategies.

6.3 Outline Waste Segregation

Clear guidelines to separate waste materials with information about specific dumpsters (including their sizes, number, and locations) for each stream is included in the Waste Management Plan. This covers the waste storage process as well.

6.4 Determine disposal methods

Sustainable disposal options for all waste, such as recycling, composting, chemical treatment and incineration (for hazardous waste) where possible. MSALABS will use the Environmental Hierarchy of disposal



7. ENVIRONMENTAL ASPECTS

Aspects are identified through the site baseline risk assessment process which is guided by MSA-OHS-P029 Risk Assessment Procedure. These are then recorded in the site-specific risk assessment.

Identified and defined environmental aspects include, but are not limited to:

1) Waste Management
2) Hazardous Materials and Chemicals
3) Hydrocarbon Management
4) Noise Emissions and Vibrations
5) Flora, Fauna and Cultural Heritage
6) Air Quality (including dust)
7) Surface and ground water Quality

8. WASTE STREAMS AND WASTE DISPOSAL / TREATMENT

8.1 Acid Neutralization and Disposal (Hydrofluoric Acid and Nitric Acid) generated through geochemical analysis

Hydrofluric acid and nitric acid is used in some of the methods utilized in geochemical analysis. Acid waste must be collected in a designated sump, especially when dealing with corrosive substances. Waste from the digestion room is typically highly acidic, with a pH below 2.0, and must be neutralized before it can be safely discharged.

Neutralization is carried out using calcium hydroxide ($Ca(OH)_2$) solution and may be done either automatically or manually, depending on the severity of the acidity.

Automatic Dosing System

At the Omaruru lab, the acidic waste will be collected in a designated sump.When the pH in the sump drops below 6.0, the automated dosing system activates, injecting $Ca(OH)_2$ solution through a dosing pump. This continues until the pH stabilizes within the target neutral range of 6.0 to 8.0. The system is designed to begin dosing below pH 6.5 and to stop once the pH reaches 7.0.

In situations where the pH falls below 3.0, automated dosing is generally insufficient, and manual intervention is required.

Manual neutralization:

PPE – nitrile / butane gloves, elbow length, P1 face mask, safety glasses and full face shield. Chemical resistant overalls, chemical resistant safety shoes.

Operators add the $Ca(OH)_2$ solution manually to the sump while running the air compressor to ensure complete mixing. Dosing is done gradually and carefully monitored until the pH reaches a safe, neutral level. It's important to be cautious when using hydrated lime, as it reacts slowly and can easily lead to overdosing if not handled properly. Lime can also cause chemical burns if this comes into contact with skin, and therefore, PPE should be worn when handling lime. This includes PVC / Latex gloves, long sleeve overalls, P1 dust mask, safety goggles with side shields. Hand should be properly washed after handling lime to ensure that there is no cross contamination afterwards.

The dosing system must be inspected prior to morning shift commencing, at lunch time and then at the end of the shift.

This includes checking that the reagent tank is full, ensuring the dosing pump and tubing are free of leaks or blockages, confirming that flow is visible through the reagent lines, and verifying that the pump settings are between 130 and 140. The reagent tank should always remain within its

bunded area, and any spills around the tank, pump, or tubing should be rinsed down promptly to prevent corrosion.

When topping up the reagent drum, a 10–15% by weight mixture of hydrated lime or soda ash should be prepared using water from the hosepipe. During preparation and handling, appropriate personal protective equipment (PPE)—including chemical resistant (nitrile or butane rubber) gloves, safety goggles with side protection, and a mask, P1, full face shield—must be worn, especially when dealing with fine powders like hydrated lime.

Test and record pH on form **MSA-LAB-F007 (Neutralized Water Waste Disposal Log).**

Care must also be taken with the pH probe. It should never be allowed to dry out and must always remain submerged. When not in use, it should be stored in a 5% salt solution. Calibration of the pH probe using standard pH 7 and pH 4 solutions should be done every three months, with spot checks conducted as needed using a handheld pH meter to ensure accuracy.

All relevant Safety Data Sheets (SDS) should be reviewed prior to handling any chemical or acid.

Caution: Some of the acids used in the laboratory are CONCENTRATED ACIDS. Personal Protective Equipment MUST be always worn for this procedure: long rubber gloves, rubber apron, a full-face shield, safety glasses and lab coat. Shoe protectors may be worn over acceptable personal footwear – employees must see the supervisor if further clarification is required.

Hydrofluoric acid is a highly corrosive liquid and is a contact poison. Once absorbed into blood through the skin, it reacts with blood calcium and may cause cardiac arrest. HF MUST be handled with extreme care.

Full PPE required: long rubber gloves, rubber apron, full-face face shield, safety glasses, lab coat, and rubber boot or rubber boot protectors. Ensure Calcium Gluconate is available and valid prior to disposing of HF.

Staff are responsible for knowing what acids they are dealing with from various methods. Confirm with area supervisor if clarification is required.

Refer to **MSA-OHS-P005 (Spill Clean Up Guide**) for information on hazardous waste spills.

8.2 Chemically Contaminated Waste

8.2.1 Disposal of Plastic Bottle Waste

All used plastic containers that contained chemicals of any form are to be rinsed thoroughly at least three times with clean water. The sink is located in the WetLab which is designated for liquid chemical waste. Holes are to be punctured through the bottom and sides. These containers may then be regarded as safe for general waste disposal. Plastic waste must be placed in the designated "PLASTICS" orange bin.

8.2.2 Disposal of Glass Container Waste

All used glass containers that contain chemicals of any form are to be rinsed thoroughly at least three times with clean water at the sink located in the WetLab. Bottles are then disposed of in the in the white bin labelled "GLASS".

8.3 Lead Contaminated Waste

8.3.1 Any sample spills, flux must be cleaned up immediately by vacuuming the dust using a HEPA vacuum designated for the fire assay laboratory.

8.3.2 Spilled Imported (Regulated) Soil samples must be cleaned up using the 10% Bleach solution in the spill kit. Spray down the spill and leave solution in place for at least 30 seconds, then wipe up the solution using the paper towel provided. All waste must be placed in the small garbage bags provided. Refer to **MSA-LOG-P006 (Import and Handling of Regulated Soil Samples and Related matter**) for additional details.

8.3.3 All Fire assay waste must be stored in red metal skip. Once the skip becomes ¾ full, the registered hazardous waste removal company will collect for safe disposal.

8.3.4 All slag waste and used cupels must be placed inside the metal steel drums marked "Slag and Used Cupels" for proper Lead disposal. No used cupels or slag waste can be disposed of using the regular waste dumpster or plastic bins inside the laboratory.

8.3.5 The Red steel bins are the designated bins for fire assay waste. These bins are then emptied at the end of the shift after all slag has cooled and transferred to the outside red skip.

8.3.6 Slag after the pounding process must be allowed to cool for a further 30 minutes before disposal into the red bin inside the Fire Assay laboratory. After cooling to room

temperature, a neutral slag or acidic slag is glassy, while the basic slag is dull and stony looking.

8.3.7 Crucibles are reused as far as possible, until such time that they are damaged or rendered unsafe for reuse. When crucibles are disposed of, these will be placed in a red steel bin or skip, in the dedicated waste storage area, which will be under a roof and access controlled until such time that a registered, hazardous waste disposal company collects the crucibles.

8.4 Dust removal – Extraction System

8.4.1 Filter replacement (dust):

Wear latex gloves, goggles, and P1 Face Mask and full overalls.

The maintenance technician must ensure that when the filters are replaced, that the filters are treated as hazardous waste. These filters must be placed into a plastic bag and sealed to prevent hazardous dust from escaping and disposed of as hazardous waste.

The area where the maintenance has taken place must be vacuumed using a vacuum fitted with a HEPA filter.

Dust collector drums:

- Turn off the dust collector and empty the dust disposal on a regular basis (recommended to empty the dustbin when 3/4 full).
- If the hopper has a butterfly valve, close before servicing the dustbin. Remove and empty the bin.
- Reinstall the bin and open the valve.
- The dust is emptied into a waste liner (plastic bag) and tied and then disposed of in the dedicated “hazardous” waste bin (red bin with a lid). Employees must be in full PPE (full body overall, safety boot, safety glass and half dust mask) when handling fire assay dust waste as per our procedure.

8.4.2 Personal Protective Equipment:

These items should be placed in the designated red bin and treated as hazardous.

8.5 General Waste

General waste that is produced contains paper, plastic, and cardboard.

Paper from office use and cardboard from packing are compressed by folding and placed into the blue plastic bin in the waste area.

Wood: all wooden crates and other wood waste is disposed of in the dedicated blue bins.

Food waste (organic waste) is disposed of in the green bin. There is a liner fitted in the waste bin to prevent the bin from emitting any foul odours, as well as deter pests.

All waste must be weighed prior to disposal and recorded on MSA-OHS-F031 Waste Management Register.

See current colour coding / labels for bins:

BLUE	Recyclable material e.g. wood, paper, cardboard.
Green	Organic waste for composting e.g. yard waste and biodegrable items.
White	Broken glassware

Red Bin	Used Personal Protective Equipment
Black	General Waste
Orange	Plastic Waste

Red Skip	Fire assay waste (hazardous) crucibles, slag and cupels

9. AIR QUALITY MANAGEMENT

MSALABS will engage with an external accredited company to conduct measuring, evaluation and documenting of our airborne emissions and fugitive emissions which may result from our activities. A scrubber will be installed at the laboratory which filters the harmful fumes generated from the chemicals and dust emissions from the laboratory processes.

Scrubbers will be inspected daily, and annual servicing will take place. This is to ensure that the scrubber operates at optimum standards and that the stack emissions are minimal.

10. MONITORING AND MEASUREMENT

Establishing metrics is essential for evaluating the progress of waste management initiatives and identifying areas in need of improvement. Key Performance Indicators (KPIs) provide measurable values that facilitate the assessment of the effectiveness of waste management strategies and inform decision-making processes.

By utilizing established metrics and KPIs, MSALABS can make informed decisions that enhance waste management outcomes. Consequently, MSALABS requires laboratories to report specific metrics on a monthly basis. These metrics include electricity usage, water consumption during operations, recycled waste, hazardous waste generated/disposed of, and other significant indicators.

Bi-annual reports are published to measure our CO_2 emissions against our annual target.

11. TRANSPORTATION – DISPOSAL COMPANIES OF HAZARDOUS WASTE

- Vehicles must have proper containment features to prevent leaks and spills during transit of hazardous waste.
- Safety Labeling must be present on the vehicle.
- Proper labeling is essential for vehicles transporting hazardous waste to communicate risks and ensure safety.
- Regulatory Compliance. Valid permits and licenses must be presented to MSALABS prior to approval as a vendor.
- There will be a legal service agreement between MSALABS and our hazardous waste disposal company.
- Waste manifests must be provided to MSALABS for auditing purposes.

12. ACCIDENTS AND INCIDENT

Environmental incidents are to be managed in accordance with the **MSA-OHS-P025 Incident Reporting and Investigation Procedure**.

Identified and accepted recommendations outlined in the *Incident Investigation Report* must be recorded via a supporting CAR unless the corrective actions identified can be rectified within 48 hours.

All incidents are reviewed at different levels of management depending on the classification. As comments are received from management and further recommendations and/or directives are

provided they must be also recorded in both the *Incident Investigation report* and *Corrective Action Register*.

STANDARD OPERATING PROCEDURE

DOCUMENT TITLE:	WASTE MANAGEMENT PROCEDURE – ACID NEUTRALIZATION AND DISPOSAL
DOCUMENT NUMBER:	MSA-GEO-P012
REVISION NUMBER:	001
COPY NUMBER:	N/A

APPROVED:

Approval on file	*Sep 3, 2020*
Laboratory Manager, MSALABS	Date
Approval on file	*Sep 3, 2020*
QAQC Manager, MSALABS	Date

NOTE: EQUIVALENT SUPPLIERS AND SUPPLIES TO THOSE STATED IN THE METHOD ARE ACCEPTABLE

1. DISTRIBUTION LIST

Copy Number	Location
N/A	MSA Network (Quality\Procedures and Forms - Quality Copy\Policies and Procedures\Geochem)

2. SCOPE

This standard operating procedure provides guidance to all MSALABS employees who generate and handle hazardous and nonhazardous chemical waste.

3. PRINCIPLE

All potential waste streams that arise from laboratory operations needs to be assessed and an appropriate disposal route selected prior to waste being generated. Waste should be collected in a suitable container and labelled. Neutralization it's a process used on wastes that are regulated due to their corrosive nature. Wastes generated in the digestion room are strongly acidic with pH of less than 2.0 and as such, waste must be neutralized prior to discharge.

4. RESPONSIBILITIES

It is the responsibility of the manager or designate to ensure that all staff working in the Digestion Department are appropriately trained in accordance with **MSA-QUA-P011 (MSA-QUA-F014 – Laboratory SOP Training Record)**, and follow the instructions outlined in this standard operating procedure.

Safety Committee, management or nominated person are responsible for working with staff to keep this policy up to date and revised as needed. Safety Committee, management or nominated person will coordinate efforts to respond to any illicit discharges that may occur.

Personnel must follow the correct procedures in accordance with this SOP. Personnel are responsible for determining the type of waste they need to dispose of and following the procedure to ensure it is disposed of properly. Personnel are also responsible for reporting instances of leakage, spills, or misuse of material receptacles.

5. SAFETY

All relevant Safety Data Sheets (SDS) should be reviewed prior to handling any chemical or acid.

5.1. **Caution**: Some of the acids used in this procedure are CONCENTRATED ACIDS. Personal Protective Equipment MUST be worn at all times for this procedure: long rubber gloves, rubber apron, a full-face shield, safety glasses and lab coat. Shoe protectors may be worn over acceptable personal footwear – employees must see the supervisor if further clarification is required.

5.2. **Hydrofluoric acid** is a highly corrosive liquid and is a contact poison. Once absorbed into blood through the skin, it reacts with blood calcium and may cause cardiac arrest. HF MUST be handled with extreme care. Full PPE required: long rubber gloves, rubber apron, full-face face shield, safety glasses, lab coat, and rubber boot or rubber boot protectors. **Ensure Calcium Gluconate is available and valid prior to using HF**.

5.3. Staff are responsible for knowing what acids they are dealing with from various methods. Confirm with area supervisor if clarification is required.

5.4. Refer to **MSA-OHS-P005 (Spill Clean Up Guide)** for information on hazardous waste spills.

5.5. Management is responsible for ensuring that the fume hoods are tested annually to ensure the correct face-velocity is achieved. Refer to **MSA-OHS-P004 (Fume Hood Testing)**, regarding the testing for confirmation of dust/fume hood performance. If canopy fume hood is not available, usage of a respirator with acid vapour cartridge is mandatory.

6. EQUIPMENT AND SUPPLIES

6.1. EQUIPMENT

7.1.1 Sink

7.1.2 Drum pump, Model – Finish Thompson Inc. S1 or equivalent

6.2. SUPPLIES

6.2.1. Plastic bucket, 20 L

6.2.2. Plastic drum with lid, 55 GAL

6.2.3. Oversized drum funnel

6.2.4. Rubber hose

6.2.5. Stir stick, plastic or wood, 2 ft

6.2.6. Stir stick, plastic or wood, 5 ft

6.2.7. Soda Ash (Sodium Carbonate)

6.2.8. pH paper

7. QUALITY CONTROL

If any laboratory equipment is in unsafe working condition, broken, damaged or not functioning in normal working condition, discontinue its use and report immediately to supervisor. Place an "OUT OF SERVICE" tag on piece of equipment which is located in the laboratory. The equipment is not to be used until re-commissioned by supervisor. Update **form MSA-LAB-F002 (Equipment History Log)** with all information pertaining to the instrument.

8. PROCEDURE

8.1. Ensure all proper PPE is worn. In the sink, fill up the plastic bucket (20L) up to 1/3 with acid waste.

8.2. Slowly and carefully in a circular motion, pour soda ash into the bucket while stirring with stir stick. Use caution as solution will react with soda ash.

8.3. Wait for the solution to stop reacting/fizzing/bubbling, add more soda ash if solution is still reacting and continue stirring until reaction stops.

8.4. Take plastic bucket of neutralized solution and sediments and carefully pour into the plastic drum via oversized funnel. If sediment remains in the bottom of the bucket, use water to rinse remaining sediment and pour into drum.

8.5. Keep filling drum with neutralized solution and sediments via plastic bucket until filled to the top leaving a 2cm gap.

8.6. Once drum is full, test the pH level of the solution to make sure it is above 5.5 and below 10.5. Refer to **MSA-WET-P007 (Meter Calibration and Operation**) or use a pH paper.

8.7. If result is within allowable tolerances, leave the drum for 24 hours to settle sediments.

8.8. Decanting of the drum

8.8.1. Decanting is to be completed at the start of the working day – this allows for an overnight settlement of the sediments. Test and record pH on form **MSA-LAB-F007 (Neutralized Water Waste Disposal Log)**.

8.8.2. Check to make sure the sediments are settled prior to proceeding.

8.8.3. Once the pump is ready, insert input hose into drum and output hose into sink. Turn on sink to full to add free flowing water, then begin pumping. While pumping, ensure input hose stays approximately 3” above sediment line to avoid sucking up any sediments which will damage the pump. Once decanting is complete fill out the remaining fields on form **MSA-LAB-F007 (Neutralized Water Waste Disposal Log)**.

8.8.4. Once the drum is 3/4 full, it is brought to Logistics for storage until it can be picked up by an external waste management company.

9. MAINTENANCE

All incidents or activities with the equipment must be recorded on form **MSA-LAB-F002 (Equipment History Log)**. This includes the flagging of equipment as out of service and software updates.

10. REFERENCES

- BC Ministry of Environmental Protection Division – Hazardous Waste Legislation Guide (2016)
- Environmental Management Act – Hazardous Waste Regulation (B.C. Reg. 63/88)

11. REVISION HISTORY

Rev No.	Date	Section #	Section Title	Comments
000	April 1, 2019	All	All	Initial DRAFT Release
001	September 3, 2020	All	All	SOP finalized

Neutralized Water Waste Disposal Log

Equipment Name:	MSA ID:	Location:	Page No.:

Date (MM/DD/YYYY)	Drum	Decanting Time (min)	pH	Initials	Comments