KYNOCH FERTILIZER

SAFETY DATA SHEET

Mn 13 EDTA

Date Issued / Revised Date	:	*25 September 2022*
New version	:	*3.0*
Date previously revised	:	*1 February 2021*
Replaced version	:	*2.0*

Prepared according to: United Nations GHS (Rev 9E) (2021) and SANS 10234:2019
(This Safety Data Sheet conforms to the requirements set by the Department of Agriculture, Land reform and Rural development of the Republic of South Africa on the 29 March 2022)

SECTION 1: IDENTIFICATION

1.1 GHS[1] product identification

Product Name : **Mn 13 EDTA**

[1] GHS - Globally Harmonized System of Classification and Labelling of Chemicals

1.2 Other means of identification

Description	:	**Manganese EDTA**
Chemical name	:	**Disodium Manganese EDTA**
CAS Number [2]	:	**15375-84-5**
EC Number [3]	:	**239-407-5**

[2] "CAS Number" - CAS Number is a numerical designation for chemicals that is maintained by the Chemical Abstracts Service (CAS) of the American Chemical Society.
[3] "EC Number" - The European Community number (EC number) is a unique identifier that was assigned to substances for regulatory purposes within the European Union by the European Commission.

1.3 Recommended use of materials and restrictions on use

Recommended use of material	:	**Intended to be used as a fertilizer and in fertilizer blends**
Description	:	**Source of plant nutrients**
Restrictions on use	:	**None Identified**

1.4 Supplier's details

Supplier's details : **1st Floor, ETG House**
62 Weirda Road East
Sandton
2196
Tel no: (011) 317-2000

1.5 Emergency phone number

Emergency phone number : **Dial Triple Zero (000) and ask for fire**
: **Ambulance or the Fire department – 10177**
: **Spilltech - 086 100 0366**
: **Kynoch - 086 092 7272**

`

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of substance or mixture

Product Defined : **Substance**

Summarized Classification

Types of Hazards	Hazard Class	Category/subcategory	H-Statement
Physical Hazards	Not Classified [1]		
Health Hazards	Not Classified		
Environmental Hazards	Not Classified		

Classification according to the United Nations GHS (Rev 9E) (2021) and SANS 10234:2019

[1] *"Not Classified" – Data conclusive but not at sufficient levels for classification.*
[2] *"H-Statement" – Hazard Statement. Full decryption in Section16*

Classification by Organization

Organization	Substance	CAS Number	Classification
EPA-NZ	Disodium Manganese EDTA	**15375-84-5**	Not Listed
ECHA	Disodium Manganese EDTA	**15375-84-5**	No Classification
ILO (WHO)	Disodium Manganese EDTA	**15375-84-5**	Not Listed
AICIS	Disodium Manganese EDTA	**15375-84-5**	Not Listed

Reference: (European Chemical Agency [ECHA], n.d.) & (Environmental protection agency [EPA]. New Zealand Government, n.d.) & (The Australian Industrial Chemicals Introduction Scheme [AICIS], n.d.) & (International Labour organization [ILO], n.d.)

2.2 GHS Label elements, including precautionary statements

Pictogram : **No Classification**

Pictogram Name : **No Classification**

Signal Word : **No Signal word**

Hazard Statements : **N/A**

Precautionary Statements : **N/A**

Reference: (Pubchem, GHS, n.d.)

2.3 Other hazards that do not result in classification

: **Non specified**

Reference: (European Chemical Agency [ECHA], n.d.) & (Pubchem, search, n.d.)

`

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Common name	:	**Mn EDTA**
EC Name	:	**Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']manganate(2-)**
Chemical Formula	:	**C10H12N2O8MnNa2**
Molecular Weight	:	**347.18 g/mol**
Nutrient Content	:	**13% Manganese (Mn)**
CAS Number	:	**15375-84-5**
EC Number	:	**239-407-5**
Impurities and stabilizers	:	**N/A**[1]

[1] *"N/A" – Not available*

Reference: (European Chemical Agency [ECHA], n.d.) & (The Australian Industrial Chemicals Introduction Scheme [AICIS], n.d.)

3.2 Mixture

Mixture	:	**N/A**

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General information	:	**In all cases of doubt, or when symptoms persist, seek medical attention.**
After inhalation	:	**Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Move to fresh air. If symptoms persist, seek medical advice.**
After skin contact	:	**Take off contaminated clothing immediately. Wash immediately with soap and water. Launder clothes before reuse.**
After eye contact	:	**Rinse thoroughly with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if irritation develops.**
After swallowing	:	**Rinse mouth, give water to drink.**

4.2 Most important symptoms and effects, both acute and delayed

Effects	:	**No typical effects known.**
Symptoms	:	**No typical symptoms known.**

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available

`

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing medium

Suitable extinguishing agents	:	**Water spray, foam, carbon dioxide, dry chemical powder.**
Inappropriate extinguishing media	:	**None known.**
Notes	:	**Use fire extinguishing methods suitable to surrounding conditions.**

5.2 Specific hazards arise from chemical

Warning	:	**Not applicable.**
Hazardous Combustion Products	:	**Not applicable.**
Fire hazard	:	**Non-flammable substance**
Explosion hazard	:	**Not applicable**
Reactivity	:	**Keep away from: Aluminium and humidity / water.**

5.3 Special protective action for Fire-Fighters

Special protective actions for fire-fighters	:	**Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.**
	:	**No action shall be taken involving any personal risk or without suitable training.**
Special protective equipment for fire-fighters	:	**Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.**
	:	**Clothing for fire-fighters (including helmets, protective boots, and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.**

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Percussions	:	**No action shall be taken involving any personal risk or without suitable training.**
Equipment	:	**Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.**
Procedure	:	**Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation.**

[1] *PPE – Personal precautions, protective equipment.*

6.2 Environmental precautions

Environmental	:	**Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.**
	:	**Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air).**
	:	**Discharge into the environment must be avoided.**

`

6.3 Methods and material for containment and cleaning up

Small Spill	:	**Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.**
Large Spill	:	**Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements, or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.**

6.4 Reference to other sections

Section 7	:	**Information on safe handling.**
Section 8	:	**Information on personal protection equipment.**
Section 13	:	**For disposal information.**

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling	:	**Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Wear protective gloves/eye protection/face protection. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling.**
	:	**For precautions see section 2.2.**

7.2 Conditions for safe storage, including any incompatibilities

Storerooms and receptacles	:	**No specific recommendations**
One common storage facility	:	**Protect from moisture and wet air.**
Handling of product	:	**Keep container tightly closed and dry. Avoid dust generation.**
Room conditions	:	**Protect from moisture and wet air.**
Storage Class	:	**(TRGS 510): 10 - 13 Other liquids and solids: Non-Combustible Solids**

Reference: (BAUA, 2016)

7.3 Specific end use(s)

	:	**Apart from the uses mentioned in section 1.3 no other specific uses are stipulated**

`

SECTION 8: EXPOSURE CONTROL AND PERSONNEL PROTECTION

8.1 Control Parameters

	Compound	Cas Number		TWA [1]	STEL [2]
South African Labour Department	Mn EDTA	15375-84-5		Not Listed	Not Listed
International Labour organization (ILO)	Mn EDTA	15375-84-5		Not Listed	Not Listed
OCHA	Mn EDTA	15375-84-5		Not Listed	Not Listed

[1] TWA – Long term exposure: Time Weighted Average (8-hour period)
[2] STEL – Short term exposure: Short term exposure limit (15 min period)

Reference: (South African Labour Department, 2021) & (ILO, n.d.) & (OSHA, n.d.)

Routes of exposure	:	**The substance can be absorbed into the body by inhalation of dust.**
Inhalation risk	:	**Not Specified**
Effects of short-term exposure	:	**Not Specified**
Effects of long-term or repeated exposure	:	**Not Specified**

Reference: (ILO, n.d.)

8.2 Appropriate engineering controls

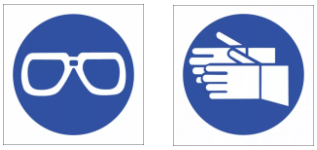
Engineering	:	**No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.**

8.2 Individual protection measures

Eye/face protection	:	**Wear safety glasses.** Use equipment for eye protection tested and approved under appropriate government standards. SABS adoption: SANS 50166:2018(SA), EN 166(EU) or NIOSH (US).
Skin Protection	:	**Handle with gloves.** Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body Protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	:	**Respiratory protection only necessary if risk assessment indicates this.** Where protection from nuisance levels of dusts is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

`

Control of environmental exposure	**No special environmental precautions required**



SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Properties

Physical state	:	**Solid** [1]
Composition	:	**Mono-constituent substance**
Colour	:	**Off-White organometallic powder**
Odour	:	**Odourless**
Melting point/freezing point	:	**>250°C**
Boiling point or initial boiling point and boiling range	:	**The study does not need to be conducted because the substance is a solid which decomposes before boiling.**
Flammability	:	**Product is not flammable**
Lower and upper explosion limit/flammability limit	:	**The substance has no explosive properties.**
Flash point	:	**Flashpoint is not relevant for solids.**
Auto-ignition temperature	:	**264°C**
Oxidizing Properties	:	**Non oxidising**
Decomposition temperature	:	**252°C**
pH	:	**6.0 – 7.0**
Kinematic viscosity	:	**Not applicable**
Solubility	:	**412 g/L water @ 25°C**
Partition coefficient: n-octanol/water (log value)	:	**The calculated log Kow is less than the bio concentration threshold (log Kow =3) indicating that EDTA-Mn Na2 is not expected to be susceptible to bioaccumulation.**
Vapour pressure	:	**10-3 mbar at 120.8°C. No decomposition is observed.**
Density and/or relative density	:	**1.403 g/cm³ @ 20°C**
Relative vapour density	:	**Not determined**
Bulk Density (Volumetric)	:	**600-800 kg/m³**
Particle characteristics	:	**d10 was 22.9-24.3 µm** **d50 was 91.5-96.3 µm** **d90 was 176-194 µm** **52.3-55.6 (v/v%) is <100 µm**
Molecular Formula	:	**C10H12N2O8MnNa2**
Molecular Weight	:	**347.18 g/mol**

[1] *"Solid" – Is a substance that cannot be classified as a liquid or Gas.*
[2] *"Substance" – Is chemical elements and their compounds in their natural state or obtained by production process)*

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.)

`

SECTION 10: STABILITY AND REACTIVITY

Reactivity	:	**Not specified.**
Chemical stability	:	**Stable under normal conditions.**
Hazardous Reactions	:	**A dangerous reaction will not occur.**
Conditions to Avoid	:	**Avoid humidity and water.**
Incompatible Materials	:	**Aluminium.**
Hazardous Decomposition Products	:	**Not specified.**

Reference: Minema Chemicals (2022)

SECTION 11: TOXICOLOGY

11.1 Acute Toxicity

Classification	:	**Not classified.**
Description	:	**The acute oral toxicity test did not show mortality at a limit dose of 2000 mg/kg bw and the 4-h inhalation toxicity study did not show mortality at the limit concentration of 5000 mg/m3.**

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Mn EDTA	15375-84-5	LD50[1]	2000 mg/kg bw	Rat
Inhalation	Mn EDTA	15375-84-5	LC50	5.16 mg/L air	Rat
Dermal	Mn EDTA	No study available			

[1] *"LD50" – Lethal Doses. The dosage at which 50% mortality was observed.*
[2] *"LDLo" - The lethal dose low is the lowest dosage of a compound that is introduced to the human body or that of an animal by any means apart from inhalation that will cause the death of the individual.*
[3] *"LC0" – The lethal concentration 0 represents the concentration at which no individuals are expected to die.*
[4] *"bw" - body-weight/day*

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.) & (EPA. New Zealand Government, n.d.)

11.2 Skin corrosion/irritation

Classification	:	**No Classification**
Description	:	**Very slight erythema (grade 1) was observed in one animal at 1 h after removal of the patch. There were no further skin reactions and no systemic adverse effects.**
Subject	:	**Rat**

Reference: (ECHA, n.d.)

11.3 Serious eye damage/irritation

Classification	:	**No Classification**
Description	:	**Although the test item induced slight irritation, no classification is needed**
Subject	:	**Rabbit**

Reference: (ECHA, n.d.)

11.4 Respiratory or skin sensitisation

Classification	:	**No Classification**
Description	:	**Waived because of sufficient information available for other metal chelates of EDTA. Under the conditions of this test, EDTA-FeNa was not considered to be a skin sensitizer.**
Subject	:	**Mouse**

Reference: (ECHA, n.d.)

11.5 Germ cell mutagenicity

Classification	:	**No Classification**
Description	:	**Because both the Ames test, the in vitro micronucleus test and the MLA were negative, it was concluded that EDTA-MnNa2 is not mutagenic and that no classification is needed for this endpoint.**
Subject	:	**Human**

Reference: (ECHA, n.d.)

11.6 Carcinogenicity

Classification	:	**No Classification**
Description	:	**EDTA-MnNa2 has a wide dispersive use; however, EDTA-MnNa2 is not classified as mutagen category 3 and there is no evidence from repeated dose studies that EDTA-MnNa2 is able to induce hyperplasia and/or pre-neoplastic lesions.** **Based on the information indicated above, no classification is needed for EDTA-MnNa2**
Subject	:	**Rat**

Reference: (ECHA, n.d.)

11.7 Reproductive toxicity

Classification	:	**No Classification**
Description	:	**Effects on fertility and developmental toxicity of EDTA-MnNa2 were seen in rats at a very high level of 1500 mg/kg bw - which is in excess of 1000 mg/kg bw**
Subject	:	**Rat**

Reference: (ECHA, n.d.)

11.8 STOT [2] - single exposure

Classification	:	**No data available**

[2] "STOT" - Specific target organ toxicity.

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.)

11.9 STOT [2] - repeated exposure

Classification	:	**No Classification**
Description	:	**No classification is needed for EDTA-MnNa2 following repeated exposure.**
Subject	:	**Rat**

[2] "STOT" - Specific target organ toxicity.

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.)

`

11.10 Aspiration hazard

Classification : **Because the 4-h LC50 was > 5.16 mg/L and signs observed during and after exposure were very limited, EDTA-MnNa2 is not toxic after inhalation and classification is not needed.**

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.)

11.11 Route of Exposure and potential effects

Swallowing : **Not specified.**

Inhalation : **Not specified.**

Eye exposure : **Not specified.**

Skin exposure : **Not specified.**

Reference: (ECHA, n.d.)

11.12 Long- and short-term effects

No data available

Reference: (ECHA, n.d.)

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Classification : **Triggers for classification are not met.**

Aquatic Toxicity :

Compound	Cas Number	Organism	Species	Time	Measure	Value
Mn EDTA	15375-84-5	Fish	Danio rerio (Zebrafish)	96-h	NOEC	1000 mg/L
Mn EDTA	15375-84-5	Aquatic invertebrates	Daphnids	48-h	EC50	107 mg/L
Mn EDTA	15375-84-5	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	72-h	EC50	649.3 mg/L
Mn EDTA	15375-84-5	Micro-organisms	Activated sludge	3-h	NOEC	640 mg/L

`

Terrestrial Toxicity :

Compound	Cas Number	Organism	Species	Time	Measure	Value
Mn EDTA	15375-84-5	Macro-organisms	Earthworms	Unknown	EC50	207.7 mg/kg
Mn EDTA	15375-84-5	Arthropods				Not Justified
Mn EDTA	15375-84-5	Plant	Vegatative vigour and seedling emergence	21 days	NOEC	97.2 mg/kg
Mn EDTA	15375-84-5	Micro organisms				Not Justified
Mn EDTA	15375-84-5	Birds				Not Justified

[1] *"LC50 /EC50" - (Median Lethal Concentration/Median Effective Concentration) They are the concentrations at which 50% mortality or inhibition of a function (e.g., growth or growth rate) was observed.*
[2] *"NOEC" - No Observed Effect Concentration. NOEC is the highest tested concentration for which there are no statistically significant difference of effect when compared to the control group.*
[3] *"ECx" - It is the concentrations at which x % (10% for EC10) effect was observed or derived statistically when compared to the control group.*

Reference: (ECHA, n.d.) & (Pubchem, search, n.d.)

12.2 Persistence and degradability

Stability : **EDTA is resistant to hydrolysis.**

Biodegradation : **EDTA (acid form) and its salts are not readily biodegradable according to OECD criteria , for justification for read-across see IUCLID 5, Chapter 13. It was shown that under special conditions like adaptation or slightly alkaline pH, which is realistic under environmental surface water conditions, the biodegradability of EDTA is considerable enhanced. Therefore it can be concluded that EDTA is ultimately biodegradable under such environmental conditions.**

Reference: (ECHA, n.d.)

12.3 Bioaccumulate potential

Description : **Based on the estimated logKow (<3) and available BCF study in fish with radiolabelled EDTA (BCF range 1.1-1.8) it can be concluded there is low potential for bioaccumulation for EDTA-ZnNa2.**

Reference: (ECHA, n.d.)

12.4 Mobility in soil

Adsorption : **The estimated log Koc values are less than the threshold value of 3, indicating no/low adsorbing potential for this compound. The low adsorbing potential is also supported by the fact that this compound is mostly negatively charged at relevant environmental pH values, reducing its chances of being adsorbed to soil minerals/humic acids.**

Volatilization : **Volatilization is unlikely due to the properties of the substance.**

Reference: (ECHA, n.d.)

12.5 Other adverse effects

Classification : **No data available**

`

SECTION 13: DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION

12.1 UN Modelled regulations

UN Number	:	**Not regulated**
UN proper shipping name	:	**Not listed**
Transport hazard class(es)	:	**No classification**
Packing group	:	**No classification**
Environmentally hazardous	:	**No classification**
Special precautions:	:	**ADR/RID**[1] **- Not specified**
		IMDG[2] **- Not specified**
		IATA[3] **- Not Specified**
Transport in Bulk according to IMO instructions	:	**Not specified**

Reference: (Hazmat Tool. n.d.) & (BAM. 2021)

[1] ADR/RID - International Carriage of Dangerous Goods by Rail (RID) and by Road (ADR)
[2] IMDG - The International Maritime Dangerous Goods (IMDG)
[3] IATA - International Air Transport Association (IATA)

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health, and environmental regulations specific for the substance or mixture

Regulations	:	**This Safety Data Sheet conforms to the requirements set by the Department of Agriculture, Land reform and Rural development of the Republic of South Africa, United Nations GHS (Rev 9E) (2021) and SANS 10234:2019, on the 29 March 2022.**
Restrictions	:	**The substance is not subjected to any prohibitions or restriction in South Africa.**
Chemical Safety Assessment:	:	**For this product a chemical safety assessment was not carried out.**

`

SECTION 16: OTHER INFORMATION

16.1 Preparation and revision

Latest Version

Version Number	:	**Ver. 3**
Preparation Date	:	**25 August 2022**
Where the changes as made	:	**Complete overall of all data to comply with GHS regulations**

Previous Version

Version Number	:	**Ver. 2**
Preparation date	:	**February 2021**

16.2 Abbreviations and Acronyms

GHS	:	*Globally Harmonized System of Classification and Labelling of Chemicals*
ECHA	:	*European Chemical agency*
AICIS	:	*The Australian Industrial Chemicals Introduction Scheme*
EPA-NZ	:	*Environmental protection agency New Zealand*
ILO (WHO)	:	*International labour organization (World health organization)*
CAS Number	:	*CAS Number is a numerical designation for chemicals that is maintained by the Chemical Abstracts Service (CAS) of the American Chemical Society.*
EC Number	:	*The European Community number (EC number) is a unique identifier that was assigned to substances for regulatory purposes within the European Union by the European Commission.*
H-Statement	:	*Hazard Statement*
P-Statement	:	*Precautionary Statements*
Hazard Statements	:	*H319 - Causes serious eye irritation*
Precautionary Statements	:	*P264 - Wash hands [and …] thoroughly after handling.*
	:	*P265 - Do not touch eyes.*
	:	*P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...*
N/A	:	*Not Applicable*
Not Classified	:	*Data conclusive but not at sufficient levels for classification*
PPE	:	*Personal precautions, protective equipment.*
TWA	:	*Time Weighted Average*
OEL	:	*Occupational Exposure Limits*
STOT	:	*Specific target organ toxicity*
LC50 / EC50	:	*(Median Lethal Concentration/Median Effective Concentration): They are the concentrations at which 50% mortality or inhibition of a function (e.g., growth or growth rate) was observed.*
NOEC	:	*(No Observed Effect Concentration) NOEC is the highest tested concentration for which there are no statistically significant difference of effect when compared to the control group*
ECx	:	*It is the concentrations at which x % (10% for EC10) effect was observed or derived statistically when compared to the control group*
LD0	:	*Lethal Dose 0, represents the dose at which no individuals are expected to die.*
LC0		*Lethal concentration 0, represents the concentration at which no individuals are expected to die.*
LDLo	:	*Lethal dose low, is the lowest dosage of a compound that is introduced to the human body or that of an animal by any means apart from inhalation that will cause the death of the individual.*

16.3 References

BAM. (2021) Dangerous Goods Database. Retrieved From *https://www.dgg.bam.de/quickinfo/en/#list/*

(The BAM offers with the expert portal TES information and service concerning the transport and packaging of dangerous substances and goods as well as explosives act)

BAUA. (2016). Technical Rule for Hazardous Substances. TRGS 510 Storage of hazardous substances in non-stationary containers. Retrieved from *https://www.baua.de/EN/Service/Legislative-texts-and-technical-rules/Rules/TRGS/TRGS-510.html*

(The German Federal Institute for Occupational Safety and Health offers selected publications in English. Baua's research aims to ensure a safe and healthy working environment that is adapted to the needs of humans.)

Environmental protection agency [EPA]. New Zealand Government. (n.d.) Database search. *Chemical Classification and Information Database (CCID).* Retrieved from *https://www.epa.govt.nz/search/SearchForm?SiteDatabaseSearchFilters=0&Search=*

(EPA-Environmental protection agency. EPA is the government agency responsible for regulating activities that affect Aotearoa New Zealand's environment.)

European Chemicals Agency [ECHA]. (n.d.) Information on Chemicals. Retrieved from *https://echa.europa.eu/registration-dossier/-/registered-dossier*

(ECHA - European Chemicals Agency. The European Chemicals Agency, is an agency of the EU. They implement the EU's chemicals legislation to protect your health and the environment. There work also contributes to a well-functioning internal market, innovation, and the competitiveness of Europe's chemicals industry.)

Hazmat Tool. (n.d.) Load, Transport and Storage of Hazardous Materials according U.S-Hazardous Materials Regulations (49 CFR). Retrieved from *https://www.hazmattool.com/info.php?language=en/*

(Hazmat Tool is a free to search database with information regarding the 49CRF classification and transport)

International Labour organization [ILO]. (n.d.) ICSC database. *International Chemical Safety Cards (ICSCs).* Retrieved from *https://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=&p_version=2*

(ILO-International Labour organization. ILO is a specialized agency of the United Nations. The database data was prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission. © ILO and WHO 2021.)

Minema Chemicals (2022) Search for MSDS or Specification Documents. Retrieved from http://www.minema.co.za/msds/A7000

(MINEMA Chemicals provide MSDS information and documentation on a variety of chemicals)

OECD. (n.d.) The Global Portal to Information on Chemical Substances. Classification Search. Retrieved from https://www.echemportal.org/echemportal/ghs-search/

(OECD allow the search by chemical and provides a list and access to compiled SDS's)

Pubchem, search. (n.d.) Explore Chemistry. *Quickly find chemical information from authoritative sources.* Retrieved from https://pubchem.ncbi.nlm.nih.gov/compound

(PubChem is an open chemistry database at the National Institutes of Health (NIH). Pubchem may reference some of the same sources as listed in this document)

Pubchem, GHS. (n.d.) Explore Chemistry. *GHS Classification.* Retrieved from https://pubchem.ncbi.nlm.nih.gov/ghs/

(PubChem is an open chemistry database at the National Institutes of Health (NIH). Pubchem may reference some of the same sources as listed in this document)

South African Labour Department. (2021) Regulations for Hazardous Chemical Agents. Retrieved from https://www.gov.za/sites/default/files/gcis_document/202103/44348rg11263gon280.pdf

(The Minister of Employment and Labour has, under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultation with the Advisory Council for Occupational Health and Safety, made the regulations in the Schedule)

The Australian Industrial Chemicals Introduction Scheme [AICIS]. (n.d.) Chemical information. *Search assessments.* Retrieved from https://www.industrialchemicals.gov.au/chemical-information/search-assessments?assessmentcasnumber=

(The Australian Industrial Chemicals Introduction Scheme (AICIS) helps protect Australians and the environment by assessing the risks of industrial chemicals and providing information to promote their safe use. Focus mainly on heath aspects.)

`

16.4 Disclaimer

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation.

This SDS summarises at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product and in particular how to safely handle, use, store and transport the product. Since Kynoch cannot anticipate or control the conditions under which the product may be handled, used, stored, or transported, each user must, prior to usage, review this SDS in the context of how the user intends to handle, use, store or transport the product and beyond, and communicate such information to all relevant parties.

We shall not assume any liability for the accuracy or completeness of the information contained herein or any advice given unless there has been gross negligence on our part.