



# KYNOCH FERTILIZER

## SAFETY DATA SHEET

### Kynoflex Micromix

Date Issued / Revised Date : 25 September 2022  
New version : 3.0  
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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<sup>1</sup> product identification

Product Name : **Kynoflex Micromix**

<sup>1</sup> GHS - Globally Harmonized System of Classification and Labelling of Chemicals

### 1.2 Other means of identification

Description : **Blend of different trace-elements**

CAS Number : **N/A**

EC Number<sup>3</sup> : **N/A**

<sup>2</sup> "CAS Number" - CAS Number is a numerical designation for chemicals that is maintained by the Chemical Abstracts Service (CAS) of the American Chemical Society.

<sup>3</sup> "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  
: Kynoch – 086 092 7272  
: Spilltech - 086 100 0366**

## SECTION 2: HAZARD IDENTIFICATION

### 2.1 Classification of substance or mixture

Product Defined : **Mixture**

#### Summarized Classification

Types of Hazards	Hazard Class	Category/subcategory	H-Statement
Physical Hazards	Not Classified		
Health Hazards	Acute Toxicity, oral	Category 4	H302
	Reproductive toxicity	Category 1	H360FD
Environmental Hazards	Not Classified		

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

<sup>1</sup> "Not Classified" – Data conclusive but not at sufficient levels for classification.

<sup>2</sup> "H-Statement" – Hazard Statement. Full decryption in Section16

Description	CAS Number	Classification
Disodium Copper EDTA	15025-15-1	Acute Tox. 4, Eye Damage 2
Disodium zinc EDTA	14025-21-9	No Classification
Disodium Manganese EDTA	15375-84-5	No Classification
Fe 13 EDTA	15708-41-5	No Classification
Boric Acid	10043-35-3	Rep. Tox. Cat1
Sodium Molybdate	7631-95-0	No Classification

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 :



Pictogram Name : **Health hazard**

Signal Word : **Danger**

Hazard Statements : **H303** - **May be harmful if swallowed**  
: **H360FD** - **May damage fertility; May damage the unborn child**

Precautionary Statements : **P203** - **Obtain, read and follow all safety instructions before use.**  
: **P280** **Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...**

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

### 2.3 Other hazards that do not result in classification

Hazards : **Not Specified**

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

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 Substance

Substance : N/A

<sup>1</sup> "N/A" – Not available

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

### 3.2 Mixture

#### Substance A:

Common name : Cu EDTA  
EC Name : Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4)-N,N',O,O',ON,ON']cuprate(2-)  
Chemical Formula : C<sub>10</sub>H<sub>12</sub>CuN<sub>2</sub>O<sub>8</sub>.2Na  
Molecular Weight : 397.74 g/mol  
Nutrient Content : 15% Copper (Cu)  
CAS Number : 14025-15-1  
EC Number : 237-864-5

#### Substance B:

Common name : Zn EDTA  
EC Name : Disodium [[N,N'-ethylenediylbis[N-(carboxylatomethyl)glycinato]](4)-N,N',O,O'.ON.ON']zincate(2-)  
Chemical Formula : C<sub>10</sub>H<sub>12</sub>N<sub>2</sub>O<sub>8</sub>Zn.2Na  
Molecular Weight : 522.667 g/mol  
Nutrient Content : 15% Zinc (Zn)  
CAS Number : 14025-21-9  
EC Number : 237-865-0

#### Substance C:

Common name : Mn EDTA  
EC Name : Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4)-N,N',O,O',ON,ON']manganate(2-)  
Chemical Formula : C<sub>10</sub>H<sub>12</sub>N<sub>2</sub>O<sub>8</sub>MnNa<sub>2</sub>  
Molecular Weight : 347.18 g/mol  
Nutrient Content : 13% Manganese (Mn)  
CAS Number : 15375-84-5  
EC Number : 239-407-5

#### Substance D:

Common name : Fe EDTA  
EC Name : Sodium feredetate  
Chemical Formula : C<sub>10</sub>H<sub>12</sub>N<sub>2</sub>O<sub>8</sub>FeNa  
Molecular Weight : 367.05 g/mol

Nutrient Content : **13% Iron (Fe)**  
CAS Number : **15708-41-5**  
EC Number : **239-802-2**

**Substance E:**

Common name : **Boric Acid**  
EC Name : **Boric Acid**  
Chemical Formula : **H<sub>3</sub>BO<sub>3</sub>**  
Molecular Weight : **61.84 g/mol**  
Nutrient Content : **17% Boron (B)**  
CAS Number : **10043-35-3**  
EC Number : **233-139-2**  
Impurities and stabilizers : **N/A**

**Substance F:**

Common name : **Sodium Molybdate**  
EC Name : **Disodium Molybdate**  
Chemical Formula : **Na<sub>2</sub>MoO<sub>4</sub>.2H<sub>2</sub>O**  
Molecular Weight : **205.92 g/mol**  
Nutrient Content : **39% Molybdate (Mo)**  
CAS Number : **7631-95-0**  
EC Number : **231-551-7**

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

General information : **No special measures required.**  
After inhalation : **Supply fresh air. Consult doctor in case of complaints.**  
After skin contact : **Remove affected clothing. Immediately rinse with water (can use mild soap). If skin irritation continues, consult a doctor.**  
After eye contact : **Rinse opened eye for several minutes under running water (remove contact lenses if easily possible). Seek medical treatment.**  
After swallowing : **Rinse out mouth. Make victim drink water (maximum of 2 drinking glasses). Do NOT induce vomiting. If symptoms persist consult doctor.**

## 4.2 Most important symptoms and effects, both acute and delayed

Effects	: <b>The substance is irritating to the respiratory tract. May cause mechanical irritation to the eyes. The substance may cause effects on the central nervous system and kidneys. This may result in impaired functions.</b>
Symptoms	: <b>Inhalation</b> - <b>Cough. Sore throat.</b>
	: <b>Ingestion</b> - <b>Nausea. Vomiting. Diarrhoea. Abdominal pain. Skin rash. Headache. Drowsiness. Convulsions.</b>
	: <b>Skin contact</b> - <b>No acute symptoms expected.</b>
	: <b>Eye contact</b> - <b>Redness, pain.</b>

## 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	: <b>Not Specified</b>
Inappropriate extinguishing media	: <b>Not Specified</b>
Notes	: <b>Use fire extinguishing methods suitable to surrounding conditions.</b>

## 5.2 Specific hazards arise from chemical

Warning	: <b>Not Specified</b>
Hazardous Combustion Products	: <b>Gives off irritating or toxic fumes (or gases) in a fire. Nitrous gasses may be produced.</b>
Fire hazard	: <b>Non-flammable substance</b>
Explosion hazard	: <b>Not applicable</b>
Reactivity	: <b>Keep away from: Aluminium and humidity / water.one</b>

## 5.3 Special protective action for Fire-Fighters

Special protective actions for fire-fighters	: <b>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.</b>
	: <b>No action shall be taken involving any personal risk or without suitable training.</b>
Special protective equipment for fire-fighters	: <b>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</b>
	: <b>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.</b>

## 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.

<sup>1</sup> 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.
- Handling : Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.
- : For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

- Storerooms and receptacles : **Not Specified**
- One common storage facility : **Separated from strong bases. Protect from moisture and wet air.**
- Handling of product : **Avoid dust formation. Keep container tightly closed and dry.**  
**Good housekeeping procedures should be followed to minimise dust generation.**
- Room conditions : **Dry, indoor storage is recommended.**
- Storage Class : **(TRGS 510): 10 - 13 Other liquids and solids: Non-Combustible Solids**  
*Reference: (BAUA, 2016)*

## 7.3 Specific end use(s)

- 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 <sup>1</sup>	STEL <sup>2</sup>
OCHA	Cu EDTA	14025-15-1		Not Listed	Not Listed
OCHA	Zn EDTA	14025-21-9		Not Listed	Not Listed
OCHA	Mn EDTA	15375-84-5		Not Listed	Not Listed
OCHA	Fe EDTA	15708-41-5		Not Listed	Not Listed
International Labour organization (ILO)	Boric Acid	10043-35-3		2 mg/m <sup>3</sup>	6 mg/m <sup>3</sup>
OCHA	Sodium Molybdate	7631-95-0		0.5 mg/m <sup>3</sup>	Not Listed

<sup>1</sup> TWA – Long term exposure: Time Weighted Average (8-hour period)

<sup>2</sup> 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 and by ingestion.**
- Inhalation risk : **Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly, especially if powdered.**
- Effects of short-term exposure : **The substance is irritating to the respiratory tract. May cause mechanical irritation to the eyes. The substance may cause effects on the central nervous system and kidneys. This may result in impaired functions.**
- Effects of long-term or repeated exposure : **Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the testes. Animal tests show that this substance possibly causes toxicity to human reproduction or development.**

*Reference: (ILO, n.d.)*

## 8.2 Appropriate engineering controls

- : **Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations, and safety showers are close to the workstation location. See Section 7.**

## 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 : **Not required under normal conditions of use.**  
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**<sup>1</sup>
- Composition : **Mixture**<sup>2</sup>
- Colour : **Colourless / White to brown, red and black**
- Odour : **Odourless**
- Melting point/freezing point : **133-134 °C**
- Boiling point or initial boiling point and boiling range : **Decomposes**
- Flammability : **Product is not flammable**
- Lower and upper explosion limit/flammability limit : **Not determined**



Flash point	: Not applicable
Auto-ignition temperature	: Not determined
Oxidizing Properties	: Non oxidizer
Decomposition temperature	: $\geq 150$ °C
pH	: Not Available
Kinematic viscosity	: N/A
Solubility	: N/A
Partition coefficient: n-octanol/water (log value)	: N/A
Vapour pressure	: N/A
Density and/or relative density	: N/A
Relative vapour density	: N/A
Bulk Density (Volumetric)	: N/A
Particle characteristics	: between 0.1 - 5mm
Molecular Formula	: N/A
Molecular Weight	: N/A

<sup>1</sup> "Solid" – Is a substance that cannot be classified as a liquid or Gas.

<sup>2</sup> "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	: Contact with combustible materials may cause fire. Contact with base release ammonia.
Chemical stability	: Stable under normal conditions
Hazardous Reactions	: Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.
Conditions to Avoid	: Avoid humidity and water.
Incompatible Materials	: Separated from strong bases. Aluminium.
Hazardous Decomposition Products	: None

## SECTION 11: TOXICOLOGY

### 11.1 Acute Toxicity

Classification	:
Description	: Copper EDTA is Classified as Acute Toxicity 4

#### Substance A:

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Cu EDTA	14025-15-1	LD50 <sup>1</sup>	890 mg/kg bw	Rat
Inhalation	Cu EDTA	14025-15-1	LC50	>5.3 mg/L	Rat
Dermal	Cu EDTA	14025-15-1	LD50	>2000 mg/kg bw	Rat

**Substance B:**

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Zn EDTA	14025-21-9	LD50 <sup>1</sup>	2000 mg/kg bw	Rat
Inhalation	Zn EDTA	No study available			
Dermal	Zn EDTA	No study available			

**Substance C:**

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

**Substance D:**

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Fe EDTA	15708-41-5	LD50 <sup>1</sup>	2000 mg/kg bw	Rat
Inhalation	Fe EDTA	15708-41-5	LC50	>2.75 Mg/L	Rat
Dermal	Fe EDTA	15708-41-5	LD50	2000 mg/kg bw	Rat

**Substance E:**

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Boric Acid	10043-35-3	LD50	3450 mg/kg	Rat
Inhalation	Boric Acid	10043-35-3	LD50	2.03 mg/m3	Rat
Dermal	Boric Acid	10043-35-3	LD50	>2000mg/kg	Rat

**Substance F:**

Oral	Sodium Molybdate	7631-95-0	LD50	4040 mg/kg bw	Not available
Inhalation	Sodium Molybdate	7631-95-0	LC50	> 1.93 g/m <sup>3</sup>	Not available
Dermal	Sodium Molybdate	7631-95-0	LD50	> 2000 mg/kg bw	Not available

<sup>1</sup>“LD50” – Lethal Doses. The dosage at which 50% mortality was observed.

<sup>2</sup> “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 : **None of the component was classified as skin corrosive/irritant.**  
 Subjects : **Humans, Rabbits**

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

## 11.3 Serious eye damage/irritation

Classification : **Eye Damage 2**  
 Description : **Copper EDTA is classified as Serious Eye damage Category 2.**

Subjects : Rabbits

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

## 11.4 Respiratory or skin sensitisation

Classification : No classification

Description : None of the component was classified as skin corrosive/irritant.

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

## 11.5 Germ cell mutagenicity

: No classification

: None of the component was classified as skin corrosive/irritant.

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

## 11.6 Carcinogenicity

: No classification

: None of the component was classified as skin corrosive/irritant.

: Rat and Mouse

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

## 11.7 Reproductive toxicity

Classification :

Description : Boric Acid is Classified as Reproductive Toxicity Category 1

Subject : Rat

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

## 11.8 STOT<sup>2</sup> - single exposure

No data available

<sup>2</sup> "STOT" - Specific target organ toxicity.

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

## 11.9 STOT<sup>2</sup> - repeated exposure

No data available

<sup>2</sup> "STOT" - Specific target organ toxicity.

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

## 11.10 Aspiration hazard

No data available

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

## 11.11 Route of Exposure and potential effects

Swallowing : Convulsions. Headache. Nausea. Vomiting.

Inhalation : Cough. Shortness of breath. Sore throat

Eye exposure : **Redness**

Skin exposure : **Redness**

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

## 11.12 Long- and short-term effects

No data available

Reference: (ECHA, n.d.)

# SECTION 12: ECOLOGICAL INFORMATION

## 12.1 Toxicity

Classification : **No Classification**  
Triggers for classification are not met.

Aquatic Toxicity :

### Substance A:

Compound	Cas Number	Organism	Species	Time	Measure	Value
Cu EDTA	14025-15-1	Fish	Rainbow trout	Not available	LC50 <sup>1</sup> <sub>3</sub>	>40 mg/L
Cu EDTA	14025-15-1	Aquatic invertebrates	Daphnia magna	48-h	EC50	109.2 mg/L
Cu EDTA	14025-15-1	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	Not available	EC50	662.6 mg/L
Cu EDTA	14025-15-1	Micro-organisms	Activated sludge	3-h	NOEC	953 mg/L

### Substance B:

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

### Substance C:

Compound	Cas Number	Organism	Species	Time	Measure	Value
Zn EDTA	14025-21-9	Fish	Rainbow trout, zebrafish, bluegill	Unknown	LC50 <sup>1</sup> <sub>3</sub>	685 mg/L
Zn EDTA	14025-21-9	Aquatic invertebrates	Daphnids	48-h	EC50	110 mg/L
Zn EDTA	14025-21-9	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	Unknown	EC10	>44 mg/L
Zn EDTA	14025-21-9	Micro-organisms	Activated sludge	3-h	EC50	>658 mg/L

**Substance D:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Fe EDTA	15708-41-5	Fish	Rainbow trout	96-h	LC50 <sup>1</sup>	100 mg/L
Fe EDTA	15708-41-5	Aquatic invertebrates	Daphnia magna	48-h	EC50 <sup>3</sup>	100.9 mg/L
Fe EDTA	15708-41-5	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	72-h	EC50	>87.3 mg/L
Fe EDTA	15708-41-5	Micro-organisms	Activated sludge	3-h	NOEC	>640 mg/L

**Substance E:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Boric Acid	10043-35-3	Fish	Fathead minnow fish	96-h	LC50	79.7 mg/L
		Fish	Pimephales promelas	32-d	NOEC	11.2 mg/L
Boric Acid	10043-35-3	Aquatic invertebrates	marine shrimp	48-h	EC50	130 mg/L
			Americamysis bahia		NOEC	33.1 mg/L
Boric Acid	10043-35-3	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	Unknown	EC50	52.4 mg/L
Boric Acid	10043-35-3	Microorganisms	Opercularia bimarginata-	Unknown	NOEC	10 mg/L

**Substance F:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Sodium Molybdate	7631-95-0	Fish	Oncorhynchus mykiss and Pimephales promelas	96-h	LC50	609.1 mg/L
Sodium Molybdate	7631-95-0	Aquatic invertebrates	D. magna and C. dubia	48-h	LC50	131 mg/L
Sodium Molybdate	7631-95-0	Aquatic Algae and Cyanobacteria	Pseudokirchneriella subcapitata	72-h	EC10	156 mg/L
Sodium Molybdate	7631-95-0	Micro-organisms	Activated sludge	3-h	EC10	216.5 mg/L

**Terrestrial Toxicity****Substance A:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Cu EDTA	14025-15-1	Macro-organisms	Annelids	14 days	EC50	641 mg/kg
Cu EDTA	14025-15-1	Arthropods				Not provided
Cu EDTA	14025-15-1	Plant	Vegetative vigour and seedling emergence	21 days	EC50	99.2 mg/kg
Cu EDTA	14025-15-1	Micro organisms				Not provided
Cu EDTA	14025-15-1	Birds				Not provided

**Substance B:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Zn EDTA	14025-21-9	Macro-organisms	Eisenia fetida	14 days	EC10	430 mg/kg
Zn EDTA	14025-21-9	Arthropods				Not Justified
Zn EDTA	14025-21-9	Plant	Rape and soybean	21 days	EC50	491 mg/kg
Zn EDTA	14025-21-9	Micro organisms				Not Justified
Zn EDTA	14025-21-9	Birds	Bobwhite quail	14 days	LC50	965 mg/kg bw/d

**Substance C:**

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

**Substance D:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Fe EDTA	15708-41-5	Macro-organisms				Not Specified
Fe EDTA	15708-41-5	Arthropods				Not Specified
Fe EDTA	15708-41-5	Plant				Not Specified
Fe EDTA	15708-41-5	Micro organisms				Not Specified
Fe EDTA	15708-41-5	Birds	Bobwhite quail	14 days	LC50	5000 mg/kg bw

**Substance E:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Boric Acid	10043-35-3	Macro-organisms	9 Species	24-d	NOEC	5.2 – 315 mg/kg dw
Boric Acid	10043-35-3	Anthropoids	Folsomia candida	28-d	LC50	27.8 mg/kg soil dw
Boric Acid	10043-35-3	Terrestrial plants	Unknown	Unknown	NOEC	3 - 84 mg/kg soil dw
Boric Acid	10043-35-3	Above-ground organisms	Unknown	Unknown	NOEC	3 – 419mg kg/ soil dw

**Substance F:**

Compound	Cas Number	Organism	Species	Time	Measure	Value
Sodium Molybdate	7631-95-0	Macro-organisms	Annelid worms	Unknown	EC10	7.88 mg/kg to 1661 mg/kg
Sodium Molybdate	7631-95-0	Arthropods	Folsomia candida	Unknown	EC10	37.9 mg/kg to 1865 mg/kg
Sodium Molybdate	7631-95-0	Plant	Root elongation for barley and shoot yield for	Unknown	EC10	4 mg/kg to 3476 mg/kg

			oilseed rape, red clover, ryegrass and tomato			
Sodium Molybdate	7631-95-0	Micro organisms	Nitrification, glucose induced respiration and mineralisation of plant residues	Unknown	EC10	10 mg/kg to 3840 mg/kg
Sodium Molybdate	7631-95-0	Birds	Bobwhite quail	28-day	EC10	400 mg/kg

<sup>1</sup> "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.

<sup>2</sup> "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.

<sup>3</sup> "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 : **None of the components hydrolyse nor is there evidence for photodegradation.**

Biodegradation : **Readily biodegradation study does not need to be conducted since the substance is inorganic.**

Reference: (ECHA, n.d.)

## 12.3 Bioaccumulate potential

Description : **The study does not need to be conducted as the substance as an inorganic salt has a low potential for adsorption.**

Reference: (ECHA, n.d.)

## 12.4 Mobility in soil

Adsorption : **Substance has a low potential for adsorption.**

Volatilization : **No data available**

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	:	<b>No classification</b>
UN proper shipping name	:	<b>No classification</b>
Transport hazard class(es)	:	<b>No classification</b>
Label	:	<b>No classification</b>
Packing group	:	<b>No classification</b>
Environmentally hazardous	:	<b>No classification</b>
Special precautions:	:	<b>ADR/RID<sup>1</sup> - Not classified</b>
		<b>IMDG<sup>2</sup> - Not classified</b>
		<b>IATA<sup>3</sup> - Not classified</b>
Transport in Bulk according to IMO instructions	:	<b>Not specified</b>

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

<sup>1</sup> ADR/RID - International Carriage of Dangerous Goods by Rail (RID) and by Road (ADR)

<sup>2</sup> IMDG - The International Maritime Dangerous Goods (IMDG)

<sup>3</sup> IATA - International Air Transport Association (IATA)

## SECTION 15: REGULATORY INFORMATION

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

<b>Regulations</b>	:	<b>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.</b>
<b>Restrictions</b>	:	<b>The substance is not subjected to any prohibitions or restriction in South Africa.</b>
<b>Chemical Safety Assessment:</b>	:	<b>For this product a chemical safety assessment was not carried out.</b>

## SECTION 16: OTHER INFORMATION

### 16.1 Preparation and revision

#### Latest Version

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

#### Previous Version

Version Number	:	<b>Ver. 2</b>
Preparation date	:	<b>February 2021</b>



## 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/show/>

(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/>

(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?>

(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. Their 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/>

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

**International Labour organization [ILO]. (n.d.)** ICSC database. *International Chemical Safety Cards (ICSCs)*. Retrieved from <https://www.ilo.org/dyn/icsc/>

(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.)

**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](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 health 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.