



# KYNOCH FERTILIZER

## SAFETY DATA SHEET

### MAP + 5%ZCMS

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<sup>1</sup> product identification

Product Name : **MAP + 5%ZCMS**

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

### 1.2 Other means of identification

Description : **Blend (N,P,K and S) made with < 10% Urea, contains Zinc oxide**

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	Not Classified		
Environmental Hazards	Hazardous to the aquatic environment, acute hazard	Category 3	H402

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
MAP	7722-76-1	No Classification
ZCMS		Haz. Aquatic. Cat 1

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 Pictogram required**

Pictogram Name : **No Pictogram required**

Signal Word : **No signal word required**

Hazard Statements : **H402 - Harmful to aquatic life**

Precautionary Statements : **P273 - Avoid release to the environment.**

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

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

Hazards : **Can cause serious eye irritation**

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	: Mono Ammonium Phosphate
Composition	: 0-80%
EC Name	: Ammonium dihydrogen orthophosphate
Chemical Formula	: $(\text{NH}_4)(\text{H}_2\text{PO}_4)$
Molecular Weight	: 115,025 g/mol
Nutrient Content	: 11% N 22% P
CAS Number	: 7722-76-1
EC Number	: 231-764-5

**ZCMS is a trace-element mixture that is blended into the final mixture. The Substances that are identified to be hazardous in the ZCMS mixture are listed below.**

### Substance B:

Common name	: Zinc Oxide
Composition	: <2.5%
EC Name	: Zinc Oxide
Chemical Formula	: ZnO
Molecular Weight	: 81,38 g/mol
Nutrient Content	: 40% Zn
CAS Number	: 1314-13-2
EC Number	: 215-222-5

## 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	: Not specified
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### 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 : **All extinguishing media can be used.**
- Inappropriate extinguishing media : **None identified**
- Notes : **Use fire extinguishing methods suitable to surrounding conditions.**

### 5.2 Specific hazards arise from chemical

- Warning : **No specific fire or explosion hazard.**
- Hazardous Combustion Products : **When heated to decomposition, emits toxic fumes.**
- Fire hazard : **Non-flammable substance**
- Explosion hazard : **Not applicable**
- Reactivity : **None**

### 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.**

<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 : No special requirements.
- One common storage facility : Separated from strong bases.
- Handling of product : Not Specified
- Room conditions : Store in the closed, original container.
- : Store in dry, cool area.
- Storage Class : Store at 15 to 30 °C

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	MAP	7722-76-1		Not Listed	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 its aerosol and by ingestion.**
- Inhalation risk : **Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly, especially if powdered.**
- Effects of short-term exposure : **Contact can irritate the skin and eyes**
- Effects of long-term or repeated exposure : **Repeated exposure to ammonia may cause chronic irritation of the respiratory tract.**

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	: <b>Solid</b> <sup>1</sup>
Composition	: <b>Mixture</b> <sup>2</sup>
Colour	: <b>Colourless / White to brown, red and black</b>
Odour	: <b>Odourless</b>
Melting point/freezing point	: <b>133-134 °C</b>
Boiling point or initial boiling point and boiling range	: <b>Decomposes</b>
Flammability	: <b>Product is not flammable</b>
Lower and upper explosion limit/flammability limit	: <b>Not determined</b>
Flash point	: <b>Not applicable</b>
Auto-ignition temperature	: <b>Not determined</b>
Oxidizing Properties	: <b>Non oxidizer</b>
Decomposition temperature	: <b>≥150 °C</b>
pH	: <b>Not Available</b>
Kinematic viscosity	: <b>N/A</b>
Solubility	: <b>N/A</b>
Partition coefficient: n-octanol/water (log value)	: <b>N/A</b>
Vapour pressure	: <b>N/A</b>
Density and/or relative density	: <b>N/A</b>
Relative vapour density	: <b>N/A</b>
Bulk Density (Volumetric)	: <b>N/A</b>
Particle characteristics	: <b>between 0.1 - 5mm</b>
Molecular Formula	: <b>N/A</b>
Molecular Weight	: <b>N/A</b>

<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	: None known, based on information available
Chemical stability	: Stable under normal conditions
Hazardous Reactions	: None under normal processing
Conditions to Avoid	: Incompatible products
Incompatible Materials	: Urea: strong oxidizing agents, Chlorine, sodium hypochlorite MAP: Magnesium, Strong acids, bases. KCl: Strong acids and strong oxidizing agents ZnO: Acids; Bases
Hazardous Decomposition Products	: Urea: Products Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Ammonia MAP: Toxic fumes: Ammonia KCl: Potassium oxides and chlorine gas ZnO: ZnO-fume can be generated during thermal processing.

## SECTION 11: TOXICOLOGY

### 11.1 Acute Toxicity

Classification	: No Classification
Description	: No Substance is classified for Acute toxicity

#### Substance A:

Method	Compound	Cas Number	Measure	Value	Subject
Oral	MAP	7722-76-1	LD50 <sup>1</sup>	>2000 mg/kg bw <sup>2</sup>	Rat
Inhalation	MAP	7722-76-1	LC50	>5 mg/L	Rat
Dermal	MAP	7722-76-1	LD50	>5000 mg/kg bw	Rat

#### Substance B:

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Zinc Oxide	1314-13-2	LD50 <sup>1</sup>	>5000 mg/kg bw <sup>2</sup>	Rat
Inhalation	Zinc Oxide	1314-13-2	LC50	>5.7 mg/L	Rat
Dermal	Zinc Oxide	1314-13-2	LD50	>2000 mg/kg bw	Rat

<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 : **No Classification**
- Description : **MAP and Ammonium Sulphate is not irritating. The amount in the final mixture too little to warrant a classification according to the GHS guidelines.**
- Subjects : **Humans, 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 : **Not Classified**
- Description : **None of the component was classified for reproductive toxicity.**
- 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 : **Hazardous to the aquatic environment, acute hazard, Cat 3**  
**Zinc Oxide is classified as (H400 + H410) Hazardous to the aquatic environment, long-term hazard, Category 1, Class 9**

### Aquatic Toxicity Substance A:

Compound	Cas Number	Organism	Species	Time	Measure	Value
MAP	7722-76-1	Fish	Rainbow trout	96-h	LC50 <sub>1</sub>	>100 mg/L
MAP	7722-76-1	Aquatic invertebrates	Daphnia Carinata	48-h	EC50 <sub>1</sub>	>100 mg/L
MAP	7722-76-1	Aquatic Algae and Cyanobacteria	Desmodesmus Subspicatus	72-h	EC50 <sub>1</sub>	>100 mg/L
MAP	7722-76-1	Micro-organisms	Activated sludge of a predominantly domestic sewage	3-h	EC50	>100 mg/L

### Substance B:

Compound	Cas Number	Organism	Species	Time	Measure	Value
Zinc Oxide	1314-13-2	Fish	Oncorhynchus Mykiss	96-h	LC50 <sup>1</sup>	0.169 mg/L
Zinc Oxide	1314-13-2	Fish	Unknown	Unknown	NOEC <sup>3</sup>	0.044 mg/L
Zinc Oxide	1314-13-2	Aquatic invertebrates	Daphnia magna	24-h	EC50 <sup>1</sup>	660 mg/L
Zinc Oxide	1314-13-2	Aquatic invertebrates	Daphnia magna	21-d	EC10 <sup>3</sup>	N/A
Zinc Oxide	1314-13-2	Aquatic Algae and Cyanobacteria	Scenedesmus subspicatus	72-h	EC10 <sup>3</sup>	100 mg/L
Zinc Oxide	1314-13-2	Microorganisms	-	3-h	EC50 <sup>1</sup>	1000 mg/L

## Terrestrial Toxicity

### Substance B:

Compound	Cas Number	Organism	Species	Time	Measure	Value
Zinc Oxide	1314-13-2	Micro-organisms	6 Different Species	Unknown	NOEC <sup>2</sup>	35.7-1634 mg/kg dw
Zinc Oxide	1314-13-2	Anthropoids	2 Different Species	Unknown	NOED <sup>1</sup>	14.6-1000 mg/kg dw
Zinc Oxide	1314-13-2	Terrestrial plants	18 Different Species	Unknown	NOEC <sup>3</sup>	32-5855 mg/kg dw
Zinc Oxide	1314-13-2	Micro-organisms	Unknown	Unknown	NOEC <sup>1</sup>	17-2623 mg/kg dw
Zinc Oxide	1314-13-2	Birds				Not Relevant

Terrestrial toxicity was not warranted on MAP and KCl.

<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 : **Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a 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	: 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/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.