



KYNOCH FERTILIZER

SAFETY DATA SHEET

Cu 15 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 GHS¹ product identification

Product Name : **Cu 15 EDTA**

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

1.2 Other means of identification

Description : **Copper EDTA,**
Chemical name : **Disodium copper EDTA**
CAS Number² : **14025-15-1**
EC Number³ : **237-864-5**

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 - 086 100 036**
: **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	Acute Toxicity - oral	Category 4	H302
	Serious eye damage / eye irritation	Category 2	H319
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 Section 16

Classification by Organization

Organization	Substance	CAS Number	Classification
EPA-NZ	Disodium Copper EDTA	15025-15-1	Not Listed
ECHA	Disodium Copper EDTA	15025-15-1	Acute Tox. 4, Eye Damage 2
ILO (WHO)	Disodium Copper EDTA	15025-15-1	Not Listed
AICIS	Disodium Copper EDTA	15025-15-1	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 :



Pictogram Name : **Exclamation**

Signal Word : **Warning**

Hazard Statements : **H302** - Harmful if swallowed.
: **H319** - Causes serious eye irritation.

Precautionary Statements : **P261** - Avoid breathing dust.
: **P264** - Wash hand thoroughly after handling.
: **P270** - Do not eat, drink or smoke when using this product.
: **P271** - Use only outdoors and in well-ventilated areas.
: **P280** - Wear protective gloves, protective clothing and eye protection.
: **P284** - In case of inadequate ventilation, wear respiratory protection.
: **P317** - Get medical help.

- : P330 - Rinse mouth if swallowed.
- : P351 - Rinse eyes continuously with water for several minutes.

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

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	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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	: Nitrous gasses may be produced.
Fire hazard	: Do not breath fumes.
Explosion hazard	: Do not breath fumes.
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. Flush remainder with water (Absorb the remainder with e.g. vermiculite).**
- 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 and do not breath dust. Wear protective gloves/eye protection/face protection. Do not swallow or get in eyes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.**
 - : **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
- : **Avoid dust formation. Keep container tightly closed and dry.**
- 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	Cu EDTA	14025-15-1		Not Listed	Not Listed
International Labour organization (ILO)	Cu EDTA	14025-15-1		Not Listed	Not Listed
OCHA	Cu EDTA	14025-15-1		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 : **A nuisance-causing concentration of airborne particles can be reached quickly.**
- Effects of short-term exposure : **The substance is irritating to the eyes.**
- Effects of long-term or repeated exposure : **Not Listed.**

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.**

8.3 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	: Solid¹
Composition	: Mono-constituent substance
Colour	: Blue micro granules
Odour	: Odourless
Melting point/freezing point	: 219°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	: Copper disodium complex is non flammable.
Lower and upper explosion limit/flammability limit	: No explosion in the tests with an orifice of 2 and 6 mm diameter. The substance is not thermally sensitive.
Flash point	: The study does not need to be conducted because the substance is inorganic. The study does not need to be conducted because the flash point is only relevant to liquids and low melting point solids.
Auto-ignition temperature	: 280°C
Oxidizing Properties	: Non oxidising.
Decomposition temperature	: 211°C
pH	: 5 to 9 @ 20 °C
Kinematic viscosity	: Not applicable
Solubility	: 680 g/l water @ 0°C
Partition coefficient: n-octanol/water (log value)	: The estimated log Kow of EDTA-CuNa2 is -10.4160. The minimum value advised by EUSES for this parameter is -1. This value will be used for risk assessment as a worst-case.
Vapour pressure	: The vapour pressure of EDTA-CuNa2 will be low.
Density and/or relative density	: 1.727 g/cm³ @ 20°C
Relative vapour density	: Not determined
Bulk Density (Volumetric)	: 600 - 900 kg/m³
Particle characteristics	: < 100 µm was 49.2% < 10 µm was 2.9% < 5 µm was 1.5%

Molecular Formula : **C₁₀H₁₂CuN₂O₈·2Na**

Molecular Weight : **397.74 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 : **The stability of the substance is not critical.**

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 : **Acute Toxicity 4**

Description : **It is classified but ECHA but, no acute dermal toxicity studies are available but based on read across, acute dermal toxicity following exposure to EDTA-CuNa2 is not expected.**

Method	Compound	Cas Number	Measure	Value	Subject
Oral	Cu EDTA	14025-15-1	LD50 ¹	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

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 : **GHS criteria not met**

Description : **Although slight irritation (redness) was observed, no classification and labelling were considered to be needed based on the results of this study.**

Subjects : **Rabbit**

Reference: (ECHA, n.d.)

11.3 Serious eye damage/irritation

Classification	: Category 2A (irritating to eyes) based on GHS criteria
Description	: Because two animals out of three showed corneal opacity ≥ 1 calculated as the mean score following grading at 24, 48 and 72 h after instillation and is expected to be fully reversible within an observation period of 21 days, the test material needs to be classified as eye irritant Cat. 2 (2A).
Subjects	: Rabbits

Reference: (ECHA, n.d.)

11.4 Respiratory or skin sensitisation

Classification	: GHS criteria not met
Description	: DTA-CuNa₂ did not show sensitizing properties in the mouse LLNA
Subjects	: Mouse

Reference: (ECHA, n.d.)

11.5 Germ cell mutagenicity

Classification	: No Classification
Description	: The test substance gave negative results in two in vitro mutagenicity studies, viz. the Ames test and the micronucleus test following exposure for 4 h (with and without S9 mix) but gave positive results (aneugenicity but not clastogenicity) following exposure for 20 h (without S9 -mix). The latter was most probably explained by induction of Zn deficiency. Overall, it was concluded that classification for genotoxicity is not warranted.
Subjects	: N/A

Reference: (ECHA, n.d.)

11.6 Carcinogenicity

Classification	: No Classification
Description	: Because no treatment-related tumours have been observed following chronic exposure to EDTA-CaNa₂, and no treatment-related tumours have been observed following chronic exposure to EDTA-Na₃H, and no such effects are expected for EDTA-CuNa₂, this substance does not need classification for this endpoint.
Subjects	: Rat

Reference: (ECHA, n.d.)

11.7 Reproductive toxicity

Classification	: No Classification
Description	: Effects on reproduction and effects on fetal development have not been observed in rats at levels up to 500 mg/kg bw. At the next higher level of 1500/1050 mg/kg bw significant mortality occurred before mating took place.
Subjects	: Rat

Reference: (ECHA, n.d.)

11.8 STOT² - single exposure

Classification : **No data available**

² "STOT" - Specific target organ toxicity.

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

11.9 STOT² - repeated exposure

Classification : **No Classification**

Description : **Because in this subchronic study effects were limited at a dose level of 150 mg/kg bw, no classification is needed for STOT repeated exposure.**

When comparing the results of this study with EDTA-CuNa₂ with repeated dose studies of other metal chelates (see read across document in section 13), it was concluded that EDTA-CuNa₂ was slightly more toxic (NOAEL of ca. 150 mg/kg bw) than the other metal chelates (NOAELs >= 500 mg/kg bw).

Subject : **Rat**

² "STOT" - Specific target organ toxicity.

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

11.10 Aspiration hazard

Classification : **No data available**

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
Cu EDTA	14025-15-1	Fish	Rainbow trout	Not available	LC50 ¹ ₃	>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

Terrestrial Toxicity

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

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 is not readily biodegradable according to OECD criteria.**

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-CuNa2.**

Reference: (ECHA, n.d.)

12.4 Mobility in soil

Adsorption : **The estimated log Koc value for EDTA-CuNa2 is 1 (worst case). This is less than the threshold value of 3 indicating no adsorbing potential for this compound.**

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/RID¹ - Not specified**
IMDG² - Not specified
IATA³ - 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. 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/info.php?language=en/>

(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/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/>

(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 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.