KYNOCH FERTILIZER

SAFETY DATA SHEET

MONO AMMONIUM PHOSPHATE

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

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

SECTION 1: IDENTIFICATION

1.1 GHS[1] product identification

Product Name	:	**Mono Ammonium Phosphate**

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

1.2 Other means of identification

Description	:	**Mono Ammonium Phosphate, MAP, MAP33, MAP granular**
Chemical name	:	**Ammonium Dihydrogen Orthophosphate**
CAS Number [2]	:	**7722-76-1**
EC Number [3]	:	**231-764-5**

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

1.3 Recommended use of materials and restrictions on use

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

1.4 Supplier's details

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

1.5 Emergency phone number

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

`

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of substance or mixture

Product Defined : **Substance**

Summarized Classification

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

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

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

Classification by Organization

Organization	Substance	CAS Number	Classification
EPA-NZ	MAP	7722-76-1	Not Listed
ECHA	MAP	7722-76-1	No Classification
ILO (WHO)	MAP	7722-76-1	Not Listed
AICIS	MAP	7722-76-1	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 : **No Classification**

Pictogram Name : **No Classification**

Signal Word : **No Signalling words**

Hazard Statements : **No Classification**

Precautionary Statements : **No Classification**

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

2.3 Other hazards that do not result in classification

Hazards : **Non-Specified**

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

`

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Common name	:	**Mono Ammonium Phosphate**
EC Name	:	**Ammonium dihydrogen orthophosphate**
Chemical Formula	:	**$(NH_4)(H_2PO4)$**
Molecular Weight	:	**115,025 g/mol**
Nutrient Content	:	**11% N 22% P**
CAS Number	:	**7722-76-1**
EC Number	:	**231-764-5**
Impurities and stabilizers	:	**N/A**[1]

[1] *"N/A" – Not available*

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

3.2 Mixture

Mixture	:	**Not Applicable**

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General information	:	**Non-Specified**
After inhalation	:	**Assure fresh air breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Seek medical advice.**
After skin contact	:	**Wash skin thoroughly with mild soap and water. Remove contaminated clothing and shoes. Wash clothing before re-using.**
After eye contact	:	**In case of eye contact, immediately rinse with clean water for 10-15 minutes. Seek medical advice.**
After swallowing	:	**Give water to drink. Induce vomiting. Seek medical attention if ill effect develops.**

4.2 Most important symptoms and effects, both acute and delayed

Effects	:	**Inhalation**	-	**May cause irritation of the upper respiratory tract.**
		Ingestion	-	**Large doses of this chemical can induce vomiting**
		Skin contact	-	**Irritation**
		Eye contact	-	**Irritation**
Symptoms	:	**Inhalation**	-	**Cough**
		Ingestion	-	**Large doses of this chemical can induce vomiting**
		Skin contact	-	**Redness, itching**
		Eye contact	-	**Redness**

`

4.3 Indication of any immediate medical attention and special treatment needed

Note to physician	:	**N/A**
Specific treatment	:	**Treatment systematically.**

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 protective clothing and safety glasses**
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	:	**Sweep or shovel into suitable containers. Collect spill when it's dry Rinse with plenty of water.**
Large Spill	:	**Sweep or shovel into suitable containers. Collect spill when it's dry Rinse with plenty of water.**

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 dust formation. Avoid breathing dust.**
	:	**Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Remove contaminated clothing and shoes. Wash clothing before re-using. Avoid contact with skin and eyes.**
	:	**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.**
Incompatible Material	:	**Not Specified**
Handling of product	:	**Store in the closed, original container.**
Room conditions	:	**Store in dry, cool area.**
	:	**Store at 15 to 30 °C**
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 [1]	STEL [2]
South African Labour Department	MAP	7722-76-1		Not Listed	Not Listed
International Labour organization (ILO)	MAP	7722-76-1		Not Listed	Not Listed
OCHA	MAP	7722-76-1		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 ingestion.**
Inhalation risk	:	**A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.**
Effects of short-term exposure	:	**The substance is irritating to the eyes, skin and respiratory tract.**
Effects of long-term or repeated exposure	:	**Not Listed**

Reference: (ILO, n.d.)

8.2 Appropriate engineering controls

Engineering controls	:	**Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations, and safety showers are close to the workstation location. See Section7.**

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	:	**Gloves is recommended.** 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** [1]
Composition	:	**Substance** [2]
Colour	:	**White**
Odour	:	**Odourless**
Melting point/freezing point	:	**253 °C**
Boiling point or initial boiling point and boiling range	:	**450 °C**
Flammability	:	**Not flammable**
Lower and upper explosion limit/flammability limit	:	**Not determined**
Flash point	:	**Not applicable**
Auto-ignition temperature	:	**Not flammable**
Oxidizing Properties	:	**Non oxidizer**
Decomposition temperature	:	**≥150 °C**
pH	:	**3.8-4.4**
Kinematic viscosity	:	**Not applicable**
Solubility	:	**368 g/L water @ 20°C**
Partition coefficient: n-octanol/water (log value)	:	**No data available**
Vapour pressure	:	**< 1333 hPa @ 20 °C**
Density and/or relative density	:	**1.8 g/cm³ @ 20°C**
Relative vapour density	:	**0,85 – 1,05 g/cm³**
Bulk Density (Volumetric)	:	**826-1000 kg/m³**

Particle characteristics	:	**between 0.1 - 5mm**
Molecular Formula	:	**$NH_4H_2PO_4$**
Molecular Weight	:	**115,025 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.)

SECTION 10: STABILITY AND REACTIVITY

Reactivity	:	**Non-Reactive**
Chemical stability	:	**Stable under normal conditions.**
Hazardous Reactions	:	**A dangerous reaction will not occur.**
Conditions to Avoid	:	**Moisture, high temperatures.**
Incompatible Materials	:	**Magnesium, Strong acids, bases.**
Hazardous Decomposition Products	:	**Toxic fumes: Ammonia**

SECTION 11: TOXICOLOGY

11.1 Acute Toxicity

Classification	:	**No Classification**
Description	:	**Based on the data available, ammonium dihydrogen orthophosphate does not have to be classified for acute oral, dermal and inhalation toxicity**

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

[1] *"LD50" – Lethal Doses. The dosage at which 50% mortality was observed.*
[2] *"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	:	**In a reliable skin irritation study performed comparable to OECD 404 guideline, ammonium dihydrogen orthophosphate does show some effects on the erythema, which are minimal and fully reversible within 72 hours. This was confirmed in supporting studies.**
Subjects	:	**Rabbit**

Reference: (ECHA, n.d.)

`

11.3 Serious eye damage/irritation

Classification	:	**No Classification**
Description	:	**In a reliable eye irritation study performed comparable to OECD 405 guideline, ammonium dihydrogen orthophosphate does not show any effects on the cornea and iris, but does show some limited effects on the conjunctiva (score 1 out of 3). These were decreasing in time, however not fully reversible within 72 hours (in 2 out of 6 animals). Because reversibility of the findings is expected due to the trend obvious in the individual data, the substance is considered a non-irritant. This was confirmed in supporting studies.**
Subjects	:	**Rabbits**

Reference: (ECHA, n.d.)

11.4 Respiratory or skin sensitisation

Classification	:	**No Classification**
Description	:	**No reliable study with ammonium dihydrogen orthophosphate is present. A reliable LLNA study showed no sensitisation of diammonium hydrogen orthophosphate.**
Subjects	:	**Mouse**

Reference: (ECHA, n.d.)

11.5 Germ cell mutagenicity

Classification	:	**No classification**
Description	:	**No reliable Ames and chromosome aberration studies with ammonium dihydrogen orthophosphate are present. Based on reliable in vitro studies with diammonium hydrogen orthophosphate, the Ames test and the chromosome aberration study were negative in the presence and absence of metabolic activation. For the in vitro TK assay a reliable study with ammonium dihydrogen orthophosphate is present showing negative results in the presence and absence of metabolic activation.**
Subjects	:	**S. typhimurium**

Reference: (ECHA, n.d.)

11.6 Carcinogenicity

Classification	:	**No Classification**
Description	:	**A number of recent publications have hypothesised a link between very study scientifically not necessary / other information available**
Subject	:	**N/A**

Reference: (ECHA, n.d.)

`

11.7 Reproductive toxicity

Classification	:	**No classification**
Description	:	**No data on ammonium dihydrogen orthophosphate is present. However, reliable data available on diammonium hydrogen orthophosphate shows a NOAEL for reproduction toxicity after oral exposure of rats of ≥1500 mg/kg bw/day. Based on the toxicity profile, the properties of the NH4+ and phosphate ions and the tolerable intake of phosphorus, the overall conclusion is that no additional studies are considered necessary.**
Subjects	:	**Rat**

Reference: (ECHA, n.d.)

11.8 STOT [2] - single exposure

Not available

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

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

11.9 STOT [2] - repeated exposure

Classification	:	**No Classification**
Description	:	**Based on the available data, ammonium dihydrogen orthophosphate does not have to be classified**
Subject	:	**N/A**

[2] *"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	:	**Nausea**
Inhalation	:	**Irritation**
Eye exposure	:	**Irritation**
Skin exposure	:	**Irritation**

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.**

Description : **In addition, based on the fact that no adverse effects were observed at the highest recommended test concentrations/doses (nominal concentration of 100 mg/L) in the available studies, both with the substance itself as well as with other phosphates, the substance does not need to be classified**

Aquatic Toxicity :

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

Terrestrial Toxicity :

Compound	Cas Number	Organism	Species	Time	Measure	Value
MAP	7722-76-1	Macro-organisms	Inconclusive			
MAP	7722-76-1	Arthropods	Inconclusive			
MAP	7722-76-1	Plant	Inconclusive			
MAP	7722-76-1	Micro organisms	Inconclusive			
MAP	7722-76-1	Birds	Inconclusive			

[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.*

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

12.2 Persistence and degradability

Stability : **In aqueous solution, ammonium dihydrogen orthophosphate is completely dissociated into the ammonium ion (NH4+) and the phosphate anion (PO4 3-). Hydrolysis of the substance does not occur, and it is also not susceptible to photodegradation.**

Most hydrolysis reactions in inorganic chemistry result in the donation or removal of a proton by water, forming either hydroxide or hydronium ions. Ammonium dihydrogen orthophosphate is an inorganic, neutral, salt and the ions have little tendency to react with water. Hydrolysis is therefore not a relevant parameter for this substance and testing does not appear scientifically necessary.

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

Reference: (ECHA, n.d.)

`

12.3 Bioaccumulate potential

Description	:	**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 bioaccumulation.**

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**

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

GHS Classification	:	**Not regulated**
UN Number	:	**Not listed**
UN proper shipping name	:	**No classification**
Transport hazard class(es)	:	**No classification**
Label	:	**No classification**
Packing group	:	**Not regulated**
Environmentally hazardous	:	**Not regulated**

`

Special precautions:	:	**ADR/RID**[1]	-	**Not Specified**
		IMDG[2]	-	**Not Specified**
		IATA[3]	-	**Not Specified**
Transport in Bulk according to IMO instructions	:	**Not specified**		

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

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

SECTION 15: REGULATORY INFORMATION

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

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

SECTION 16: OTHER INFORMATION

16.1 Preparation and revision

Latest Version

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

Previous Version

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

16.2 Abbreviations and Acronyms

GHS	:	*Globally Harmonized System of Classification and Labelling of Chemicals*
ECHA	:	*European Chemical agency*
AICIS	:	*The Australian Industrial Chemicals Introduction Scheme*
EPA-NZ	:	*Environmental protection agency New Zealand*
ILO (WHO)	:	*International labour organization (World health organization)*
CAS Number	:	*CAS Number is a numerical designation for chemicals that is maintained by the Chemical Abstracts Service (CAS) of the American Chemical Society.*
EC Number	:	*The European Community number (EC number) is a unique identifier that was assigned to substances for regulatory purposes within the European Union by the European Commission.*
H-Statement	:	*Hazard Statement*
P-Statement	:	*Precautionary Statements*
Hazard Statements	:	*H319 - Causes serious eye irritation*
Precautionary Statements	:	*P264 - Wash hands [and …] thoroughly after handling.*
	:	*P265 - Do not touch eyes.*
	:	*P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing*

`

protection/...

N/A	:	*Not Applicable*
Not Classified	:	*Data conclusive but not at sufficient levels for classification*
PPE	:	*Personal precautions, protective equipment.*
TWA	:	*Time Weighted Average*
OEL	:	*Occupational Exposure Limits*
STOT	:	*Specific target organ toxicity*
LC50 / EC50	:	*(Median Lethal Concentration/Median Effective Concentration): They are the concentrations at which 50% mortality or inhibition of a function (e.g., growth or growth rate) was observed.*
NOEC	:	*(No Observed Effect Concentration) NOEC is the highest tested concentration for which there are no statistically significant difference of effect when compared to the control group*
ECx	:	*It is the concentrations at which x % (10% for EC10) effect was observed or derived statistically when compared to the control group*
LD0	:	*Lethal Dose 0, represents the dose at which no individuals are expected to die.*
LC0		*Lethal concentration 0, represents the concentration at which no individuals are expected to die.*
LDLo	:	*Lethal dose low, is the lowest dosage of a compound that is introduced to the human body or that of an animal by any means apart from inhalation that will cause the death of the individual.*

16.3 References

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

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

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

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

Environmental protection agency [EPA]. New Zealand Government. (n.d.) Database search. *Chemical Classification and Information Database (CCID).* Retrieved from *https://www.epa.govt.nz/search/SearchForm?SiteDatabaseSearchFilters=0&Search=7722-76-1*

(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/15548/5/7*

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

Hazmat Tool. (n.d.) Load, Transport and Storage of Hazardous Materials according U.S-Hazardous Materials Regulations (49 CFR). https://www.hazmattool.com/index.php

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

International Labour organization [ILO]. (n.d.) ICSC database. *International Chemical Safety Cards (ICSCs).* Retrieved from *https://www.ilo.org/dyn/icsc/showcard.listCards3*

(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/516951*

(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=7722-76-1*

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

16.4 Disclaimer

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

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

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