SAFETY DATA SHEET

Issue No: 1.2	Revision date: 9 March 2023 First print date: 14 September 2017

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**MARKSMAN 240 SC**
Other means of identification:	Methoxyfenozide 240 g/ℓ
Recommended Use:	Agricultural insecticide
Supplier:	ICA International Chemicals (Pty) Ltd
Address:	28 Planken Street Plankenbrug Industrial STELLENBOSCH · 7600 · SOUTH AFRICA
Telephone No:	+27-21 886 9812
Fax No:	+27-21 886 8209
Emergency Tel No:	Griffon Poison Information Centre: +27-82 446 8946 Human Poison Helpline: +27-861 555 777

2. HAZARD IDENTIFICATION

GHS Classification of product	Acute Toxicity Oral – Category 5 Acute Toxicity Dermal – Category 5 Acute Inhalation – Category 4 Eye Irritation – Category 2B Skin Irritation – Category 3 Skin Sensitization – Category 1 Acute Aquatic Toxicity – Category 1 Chronic Aquatic Toxicity – Category 1
Label Elements Classification and Labelling of Chemicals (GHS) Rev 9, 2021; Regulation EC No. 1272/2008 [EU-GHS/CLP]	
Signal word	**WARNING**
Hazard Statements	H303 – May be harmful if swallowed H313 – May be harmful in contact with skin H316 – Causes mild skin irritation H317 – May cause an allergic skin reaction H320 – Cause eye irritation H332 – Harmful if inhaled H400 – Very toxic to aquatic life H410 – Very toxic to aquatic life with long lasting effects
General Precautionary Statements	P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read carefully and follow all instructions.
Prevention Precautionary Statements	P261: Avoid breathing mist/vapours/spray. P264 + P265: Wash hands and face thoroughly after handling. Do not touch eyes. P270: Do not eat, drink, or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment.

	P280: Wear protective gloves/protective clothing/eye and face protection.
Response Precautionary Statements	P301 + P317: IF SWALLOWED: Get medical help. P302 + P352 + P317: IF ON SKIN: Wash with plenty of soap and water. Get medical help. P333 + P317: If skin irritation or rash occurs: Get medical help. P304 + P340 + P317: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P317: If eye irritation persists: Get medical help. P321: For specific treatment; see first aid measures on this label. P362 + P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage.
Storage Precautionary Statements	P405: Store locked up.
Disposal Precautionary Statements	P501: Dispose of contents and container in accordance with national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT(S)	CAS NO:	CONCENTRATION % (w/v)	CLASSIFICATION EC1272/2008
Methoxyfenozide	161050-58-4	24	Aquatic Acute Category 1, H400; Aquatic Chronic Category 1, H410
1,2-benzisothiazol-3-one	2634-33-5	< 10	Acute Oral Toxicity Category 4, H302; Skin Irritation Category 2, H315; Eye Damage Category 1, H318; Skin Sensitization Category 1, H317, Aquatic Acute Category 1, H400; Aquatic Chronic Category 1, H410
Ethoxylated Polyarylphenol Phosphate Amine Salt	105362-40-1	< 10	Eye Irritation Category 2, H319; Skin Irritation Category 2, H315

There are no additional ingredients present which, within the current knowledge of the provider of this SDS, and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. See section 16 for legend of additional H-statements not mentioned in section 2.

4. FIRST AID MEASURES

Show this SAFETY DATA SHEET to a doctor.

INHALATION:
- Remove the victim from immediate source of exposure. Move victim to fresh air, if it can be done safely, and keep comfortable.
- If victim's breathing has stopped, perform artificial respiration.
- Administer oxygen if victim's breathing is difficult or irregular.
- Get medical help.

SKIN:
- Remove and isolate contaminated clothing, shoes, and leather goods and take a shower.
- Rinse affected areas (skin) with non-abrasive soap or mild detergent and large amounts of running water. Wash contaminated clothing before reuse. Get medical help if irritation develops and persists.

EYES:
- Rinse eyes cautiously with clean running water for at least 15 minutes, while holding eyelids apart. Remove contact lenses after 5 minutes if present and easy to do. Continue rinsing while holding eyelids apart.
- Seek medical help if irritation continues.

INGESTION:
- If swallowed, rinse mouth, DO NOT induce vomiting, unless instructed to do so by poison control center or doctor.
- Have person sip a glass of water if able to swallow.
- Never give anything by mouth to an unconscious person.
- If vomiting does occur, keep on giving fluids. Get medical help.

NOTE TO PHYSICIAN:
- There is no specific antidote. All treatments should be based on observed signs and symptoms of distress in the patient.

POTENTIAL HEALTH EFFECTS, ACUTE AND DELAYED	· Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:	**Small fires:** Dry chemical powder, carbon dioxide (CO_2), water spray or alcohol-resistant foam **Large fires:** Water spray, fog, or alcohol-resistant foam
FIRE INVOLVING TANKS:	Cool containers with flooding quantities of water until well after fire is out. DO NOT get water inside containers. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.
UNSUITABLE EXTINGUISHING MEDIA:	DO NOT use high volume water jet, due to contamination risk.
SPECIFIC EXTINGUISHING METHODS:	Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Collect contaminated extinguishing water separately; do not allow contaminated water to reach the sewage or effluent systems.
SPECIFIC HAZARDS ARISING FROM COMBUSTION PRODUCTS:	In case of fire, the formation of Carbon monoxide (CO), Nitrogen oxides (NO_x), Carbon dioxide or Hydrogen chloride ($HC\ell$) can be expected.
PRECAUTIONS FOR FIRE FIGHTERS:	Fire fighters should wear full protective gear including self-contained breathing apparatus (SCBA). Fight fire from safe distance. Contact with the fumes and vapours should be avoided by staying upwind. Clean all clothing before reuse. Severely contaminated clothing cannot be adequately decontaminated and must be disposed as a hazardous waste. Shower with soap and water after contact with chemical product.
FURTHER INFORMATION:	· If possible, safely move undamaged intact containers away from the area around the fire. · Keep containers cool by spraying with water if exposed to fire. · Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. · In case of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK:

PERSONAL PRECAUTIONS:	Avoid contact with skin and eyes. Do not touch or walk through spilled material. Do not inhale spray or fumes.
PROTECTIVE EQUIPMENT:	Wear personal protective clothing and equipment (see section 8).
EMERGENCY PROCEDURES:	Keep people and animals away. Eliminate all ignition sources (no smoking, flares, sparks, or flames) from immediate area. All equipment used when handling the product must be grounded. Use water spray to reduce vapours or divert vapour cloud drift.
ENVIRONMENTAL PRECAUTIONS:	PREVENT spilled material from entering waterway and sewer systems, basements, and confined areas. If the product contaminates rivers and lakes or waterways immediately inform respective authorities.
METHODS AND MATERIALS FOR CONTAINMENT:	Contain and absorb liquid spills with inert material, remove by scoop or vacuum. Use approved industrial vacuum cleaner for removal and place in clearly marked waste containers.
METHODS AND MATERIALS FOR CLEANING UP:	Contain spillage, and then collect with non-combustible absorbent material, (e.g., sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean, non-sparking tools to collect absorbed material.
SECONDARY DISASTER PREVENTION MEASURES:	NA

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: - Suitable Technical Measures - Suitable Precautions - Prevention of contact	· Always store insecticides in their original containers, which include the label listing ingredients, directions for use, and first aid steps in case of accidental poisoning. · Never transfer insecticides to soft drink bottles or other containers. Children or others may mistake them for something to eat or drink. · Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves.

	· Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Wash hands, arms, and face after application. Wash gloves and contaminated protective clothing daily before reuse.
CONDITIONS FOR SAFE STORAGE: - Suitable Technical Measures - Separation measures from incompatible substances and mixtures	· Keep out of reach of unauthorized persons, children, and animals. Always store insecticides in their original containers, which include the label listing ingredients, in a cool, dry, and well-ventilated area out of direct sunlight. · Segregate from foods and animal feeds. · DO NOT reuse the container for any other purpose.
PACKAGING MATERIAL	HDPE Fluorinated Containers
FIRE PRECAUTIONS:	Not applicable

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

ADI – Acceptable Daily Intake	0.1 mg kg^{-1} bw day^{-1}
AOEL – Accepted Operator Exposure Level	0.06 mg kg^{-1} bw day^{-1}
NATIONAL EXPOSURE STANDARDS:	Not available
BIOLOGICAL LIMIT VALUES:	Not available
ENGENEERING CONTROLS:	Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. If airborne mist/vapours are generated use local exhaust ventilation controls. Facilities should be equipped with an eyewash station and a safety shower. Where necessary, seek additional occupational hygiene advice.
PERSONAL PROTECTIVE EQUIPMENT:	**Respiratory Protection:** Where exposure through inhalation may occur when handling and/or when preparing the spray mixture, wear a face mask. If the product is used in confined spaces a respirator suitable for protection from dusts and mists of pesticides is adequate. **Hand Protection:** Wear chemical-resistant gloves made of any waterproof material such as nitrile rubber. Glove thickness: 0.5 mm **Eye Protection:** The use of safety goggles (full-face shield) is recommended. **Skin and Body Protection:** Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves. Remove and wash contaminated protective clothing daily.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOUR:	White
ODOUR:	Strong Chemical Odour
MELTING POINT / FREEZING POINT:	185 °C
BOILING POINT:	Decompose before boiling
DECOMPOSITION TEMPERATURE (a.i):	262.9 °C
FLASH POINT:	Not available
EXPLOSIVE LIMITS:	Not available
AUTO-IGNITION TEMPERATURE:	Not available
pH (1% IN WATER):	6.0 – 8.0
KINEMATIC VISCOSITY: $\text{Kinematic viscosity} = \frac{\text{Dynamic viscosity (mPa/s)}}{\text{Density (g/cm}^3\text{)}}$	$= \frac{1550\ \text{(mPa/s)}}{1.05\ \text{(g/cm}^3\text{)}}$ $= 1476.20\ \text{mm}^2/\text{s}$
VISCOSITY:	1550 mPa/s
DENSITY / RELATIVE DENSITY:	1.05 g/mℓ
SOLUBILITY IN WATER (a.i):	3.3 mg/ℓ (pH 7) 20 °C
N-OCTANOL / WATER PARTITION COEFFICIENT:	log P_{ow} = 3.72 at 20 °C
VAPOUR PRESSURE (a.i):	1.33 X 10^{-02} mPa at 20 °C
RELATIVE VAPOUR DENSITY:	0.634 g/mℓ

10. STABILITY AND REACTIVITY

REACTIVITY:	Not applicable
CHEMICAL STABILITY:	Stable under normal use and storage conditions.
HAZARDOUS REACTION:	Not applicable
CONDITIONS TO AVOID: (e.g. – heat, pressure, static discharge, shock, or vibration)	Avoid excessive heat and freezing temperatures.
INCOMPATIBLE MATERIALS:	Oxidizing agents (Carbon and Nitrogen oxides)
HAZARDOUS DECOMPOSITION PRODUCTS:	When heated to decomposition, irritant or dangerous fumes/vapours may be emitted. See section 5.

11. TOXICOLOGICAL INFORMATION

	ANIMAL ACUTE TOXICITY DATA (ATE)	
ORAL:	LD_{50} (rat) = 5000 mg a.i. /kg bw	**Category 5** (OECD 423)
DERMAL:	LD_{50} (rat) > 2000 mg a.i. /kg bw	**Category 5** (OECD 402)
INHALATION:	LC_{50} (4h) rat > 2.78 a.i. mg/ℓ	**Category 4** (OECD 403)
SKIN IRRITATION / CORROSION:	≥ 1 % but < 10 %	**Category 3**
SERIOUS EYE IRRITATION / DAMAGE:	≥ 1 % but < 10 %	**Category 2B**
SKIN SENSITIZATION:	≥ 0.1 %	**Category 1**
GERM CELL MUTAGENICITY:		Not classified
CARCINOGENICITY:		Not classified
REPRODUCTIVE TOXICITY:		Not classified
SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:		Not classified
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:		Not classified
ASPIRATION HAZARD:		Not classified

12. ECOLOGICAL INFORMATION

ECOTOXICITY:

METHOXYFENOZIDE	Birds: LD_{50} (oral)	*Colinus virginianus* (Bobwhite quail) Acute LD_{50} > 2250 mg/kg bw/day LC_{50}/LD_{50} > 5620 mg/kg diet Chronic NOEL = 82.7 mg/kg bw/day
	Fish: LC_{50}	*Oncorhynchus mykiss* (Rainbow trout) Acute (96h) LC_{50} > 4.2 mg a.i./ℓ *Pimephales promelas* (Fathead minnow) NOEC = 2.4 mg a.i./ℓ (33-day)
	Aquatic invertebrates - *Daphnia*	*Daphnia magna* (Water flea) Acute (48h) EC_{50} = 3.7 mg a.i./ℓ Chronic (21-day) NOEC = 0.39 mg a.i./ℓ
	Aquatic crustaceans	*Americamysis bahia* Acute (96h) LC_{50} = 1.2 mg a.i./ℓ
	Algae - EC_{50} / NOEC	*Pseudokirchneriella subcapitata* Acute (72h) EC_{50} > 3.4 mg a.i./ℓ
	Bees	*Apis mellifera* Acute contact 48-hour LD_{50} > 100 ($\mu g.bee^{-1}$) Acute oral 48-hour LD_{50} > 2000 ($\mu g.bee^{-1}$)
	Earthworms: LC_{50} /NOEC	*Eisenia foetida* Acute (14-day) LC_{50} > 607 mg a.i./kg d.w. soil Chronic NOEC = 2.04 mg a.i./kg d.w.
PERSISTENCE, DEGRADABILITY AND MOBILITY:	**Methoxyfenozide** is moderately to persistent in the soil with medium to high mobility. DT_{50} = 87.2 days K_{OC} = 402	
BIO-ACCUMULATIVE POTENTIAL:	BCF = 11 ℓ/kg	

SOIL MICRO-ORGANISMS:	Carbon transformation	No significant adverse/long-term effect
	Nitrogen transformation	No significant adverse/long-term effect

13. DISPOSAL CONSIDERATIONS

On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities.

TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Containers must be completely emptied before being disposed of. Invert the empty container over the spray or mixing tank and drain for at least 30 seconds until the flow has slowed down to a drip. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages.

14. TRANSPORT INFORMATION

UN NUMBER:	3082
UN PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, (24 % methoxyfenozide)
TRANSAPORT HAZARD CLASS(ES):	Class 9
PACKAGING GROUP:	III (low danger)
GHS TRANSPORT PICTOGRAM(S):	
ENVIRONMENTAL HAZARDS:	Marine Pollutant: Yes – Category 1
TRANSPORT IN BULK (Imo instruments):	Not applicable, not to be transported in bulk.
SPECIAL PRECAUTIONS FOR USER:	Not applicable

15. REGULATORY INFORMATION

Conforms to South Africa Regulation for Hazardous Chemical Agents, 2021.

South African Registration number L10389, Act 36 of 1947.

SDS valid for five years from date of issue.

16. OTHER INFORMATION

Legend: Full text of H-Statements referred to under sections 3:

H302 – Harmful if swallowed

H315 – Caused skin irritation

H318 – Cause serious eye damage

H319 – Cause serious eye irritation

H400 – Very toxic to aquatic life

H410 – Very toxic to aquatic life with long lasting effects

Key literature references and sources of data: Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 9, 2021. UN Model Regulations Rev. 22 (2021). EU REGULATION (EC) No. 1272/2008.

This Safety Data Sheet (SDS) summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how to prevent accidents in the normal workplace including in conjunction with other products.

The information was obtained from sources which we believe are reliable. However, the information is provided in good faith. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and for these reasons we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used for this product only.

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END of SDS