SAFETY DATA SHEET

Issue No: 1.0	First print date: 20 June 2024

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**EMPEROR 50 WG**
Other means of identification:	Emamectin benzoate 50 g/kg
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 4 Eye Irritation – Category 1 Skin Irritation – Category 3 STOT – single exposure Category 2 STOT – repeated exposure Category 2 Acute Aquatic Toxicity – Category 1 Chronic Aquatic Toxicity – Category 1
Label Elements Classification and Labelling of Chemicals (GHS) Rev 10, 2023; Regulation EC No. 1272/2008 [EU-GHS/CLP]	
Signal word	**DANGER**
Hazard Statements	H302 – Harmful if swallowed H316 – Causes mild skin irritation H318 – Cause serious eye damage H371 – May cause damage to organs H373 – May cause damage to organs through prolonged or repeated exposure 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	P260: Do not breathe dust/fumes/gas/mist/vapours/spray. P264: Wash hands and exposed skin thoroughly after handling. P270: Do not eat, drink, or smoke when using this product. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye and face protection. P264 + P265: Wash hands and face thoroughly after handling. Do not touch eyes.
Response Precautionary Statements	P301 + P317: IF SWALLOWED: Get medical help. P305 + P354 + P338: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P316: IF exposed or concerned: Get emergency medical help immediately.

	P317: Get medical help.
	P319: Get medical help if you feel unwell.
	P330: Rinse mouth.
	P332 + P317: If skin irritation occurs: Get medical help.
	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/w)	CLASSIFICATION EC 1272/2008
Emamectin Benzoate	155569–91–8	5	Acute Tox. 3 (oral), H301 Acute Tox. 3 (skin), H311 Acute Tox. 3 (inhale), H331 Eye Dam. 1, H318 STOT SE 1, H370 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Sodium dodecyl sulphate	151-21-3	5	Acute Tox. 4 (oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412

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-phrases not 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.
- DO NOT perform mouth-to-mouth resuscitation if victim ingested or inhaled the substance; wash face and mouth before giving artificial respiration. Use a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if victim's breathing is difficult or irregular.
- Get medical help.

SKIN:

- Remove and isolate contaminated clothing, shoes, and leather goods immediately and take a shower.
- Rinse affected areas (skin) immediately 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.
- In case of burns, IMMEDIATELY cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.

EYES:

- Rinse eyes IMMEDIATELY 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, 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 AFFECTS, 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), Hydrogen chloride (HCℓ), Hydrogen fluoride (HF), Hydrogen cyanide (HCN), Formaldehyde (CH_2O), Oxygen (O_2), or Phosgene ($COCℓ_2$) 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 solid 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, closed with original cap and the original label, 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.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

ADI – Acceptable Daily Intake (a.i)	**Emamectin benzoate** = 0.0005 mg kg^{-1} bw day^{-1}
AOEL – Accepted Operator Exposure Level	**Emamectin benzoate** = 0.0003 mg kg^{-1} bw day^{-1} (systemic)
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. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use. **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:	Solid
COLOUR:	Off-White
ODOUR:	Slight/Mild Chemical
MELTING POINT / FREEZING POINT °C (a.i):	160.5 °C
BOILING POINT (a.i):	Decomposes before boiling
DECOMPOSITION TEMPERATURE (a.i):	194 °C
FLAMMABILITY:	Not flammable
EXPLOSIVE LIMITS:	Not applicable
FLASH POINT:	Not available
AUTO-IGNITION TEMPERATURE:	Not available
pH (1% IN WATER):	4.0 – 6.0 at 20 °C
KINEMATIC VISCOSITY: $\text{Kinematic viscosity} = \frac{\text{Dynamic viscosity (mPa/s)}}{\text{Density (g/cm}^3\text{)}}$	Not applicable for solids
VISCOSITY:	Not applicable for solids
DENSITY / RELATIVE DENSITY:	Not applicable for solids
SOLUBILITY:	Soluble in water 98 %
N-OCTANOL / WATER PARTITION COEFFICIENT (a.i):	Log P_{ow} = 5 (pH 7, 20 °C)
VAPOUR PRESSURE (a.i):	0.004 mPa at 20 °C
RELATIVE VAPOUR DENSITY:	Not available

PARTICLE CHARACTERISTICS:	Not available

10. STABILITY AND REACTIVITY

REACTIVITY:	Stable under normal conditions no reaction with fire-fighting water.
CHEMICAL STABILITY:	Stable under normal use and storage conditions for at least 2 years.
HAZARDOUS REACTION:	Hazardous polymerization is not expected to occur.
CONDITIONS TO AVOID: **(e.g. – heat, pressure, static discharge, shock, or vibration)**	Avoid storage in moist or hot conditions, near to heat or ignition sources. Keep away from food, drink and open bodies of water.
INCOMPATIBLE MATERIALS:	None specified, Strong acids, Strong oxidizers, Strong bases, Anionic compounds, Organic material, Reducing agents, Oxidizing agents.
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) = 1667 mg a.i. /kg bw	**Category 4**
DERMAL:	LD_{50} (rat) = 6000 mg a.i. /kg bw	Not Classified
INHALATION:	LC_{50} (4h) rat = 10 mg a.i./ℓ	Not Classified
SKIN IRRITATION / CORROSION:		**Category 3**
SERIOUS EYE IRRITATION / DAMAGE:	≥ 3.0 %	**Category 1**
RESPIRATORY OR SKIN SENSITIZATION:		Not Classified
GERM CELL MUTAGENICITY:		Not Classified
CARCINOGENICITY:		Not Classified
REPRODUCTIVE TOXICITY:		Not Classified
SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:	≥ 1% and < 10%	**Category 2**
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:	≥ 1% and < 10%	**Category 2**
ASPIRATION HAZARD:		Not Classified

12. ECOLOGICAL INFORMATION

ECOTOXICITY:

EMAMECTIN BENZOATE	Birds: LD_{50} (oral)	*Colinus virginianus* (Bobwhite quail) Acute LD_{50} = 264 mg a.i./kg bw/day
	Fish: LC_{50}	*Oncorhynchus mykiss* (Rainbow trout) Acute (96h) LC_{50} = 0.174 mg a.i./ℓ
	Aquatic invertebrates	*Daphnia magna* (Water flea) Acute (48h) EC_{50} = 0.001 mg a.i./ℓ
	Aquatic crustaceans	*Americamysis bahia* Acute (96h) LC_{50} = 10 mg a.i./ℓ
	Algae - EC_{50} / NOEC	*Pseudokirchneriella subcapitata* *Formely Selenastrum capricornutum,* Acute (72h) EC_{50} = 0.072 mg a.i./ℓ
	Bees	*Apis mellifera* Acute contact 48-hour LD_{50} = 0.0036 (µg bee-1)
	Earthworms: LC_{50} /NOEC	*Eisenia fetida* Acute (14-day) LC_{50} = > 500 mg a.i./kg d.w. soil Chronic NOEC = 2.0 mg a.i./kg d.w.
AQUATIC TOXICITY:	**Summation Method** Aquatic Acute – Category 1 Aquatic Chronic – Category 1	
PERSISTENCE, DEGRADABILITY AND MOBILITY:	**Emamectin benzoate** is non-persistent in the soil and non-mobile. DT_{50} (field) = 1.1 days K_{oc} = 377000 (non-mobile)	

BIO-ACCUMULATIVE POTENTIAL:	Does not bioaccumulate	
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 with must be completely emptied before being disposed of. Shake all the pesticide formulation out of the container into the spray or mixing tank. 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:	3077
UN PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (emamectin benzoate)
TRANSPORT HAZARD CLASS(ES):	Class 9
PACKING GROUP:	III (low danger)
TRANSPORT PICTOGRAMS:	
ENVIROMENTAL HAZARD:	Marine Pollutant: **Yes – Category 1**
TRANSPORT IN BULK:	Not applicable, not to be transported in bulk.
SPECIAL PRECAUTIONS FOR USER:	Not applicable

15. REGULATORY INFORMATION

Conform to South African Regulation for Hazardous Chemical Agents, 2021.

Product: South African registration number L11613, 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:

H319 – Causes serious eye irritation

H335 – May cause respiratory irritation

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 10, 2023. UN Model Regulations Rev. 22 (2023). 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