UNIVERSAL BARITONE 50 EC SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE

Product Name: **BARITONE 50 EC**
Other identifier: **Lufenuron 50 EC**
Recommended use: Insecticide
Restrictions on use: Agriculture

Supplier: **Universal Crop Protection (Pty) Ltd.**
Co. Reg. No.: 1983/008184/07
PO Box 801,
Kempton Park, 1620, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:
24 Hr Transport / Spill emergency no:
Envirosure. +27 31 205 4918
(Hazcall24) +27 86 044 4411
(Client: Villa Crop Protection)
Griffon Poison Information Centre +27 82 446 8946
(Client: Villa Crop Protection)
Poisoning Emergency telephone numbers:
Griffon Poison Information Centre +27 82 446 8946
Poisons Information Centre +27 861 555 777
Villa Crop Protection Emergency number:
National Safety, Health and Environmental Manager:
+27 63 698 0668

2. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	**Hazard categories**	**H-statements**
Physical		
Flammable liquid	Flam. Liq. 3	H226
Health		
Oral	Acute Tox. 5	H303
Aspiration hazard	Asp. Tox. 2	H305
Dermal	Acute Tox. 5	H313
Skin irritation	Skin Irrit. 3	H316
Skin sensitization	Skin Sens. 1	H317
Eye irritation	Eye Irrit. 2	H319
Inhalation	Acute Tox. 5	H333
STOT SE	STOT SE 3	H335
Carcinogenicity	Carc. 2	H351
Environment		
Aquatic Acute	Aquatic Acute 1	H400
Aquatic Chronic	Aquatic Chronic 1	H410

The most important adverse effects:
Physiochemical effects:
Flammable liquid and vapour.
Human health effects:
Suspected to cause cancer.
Label elements:

Signal word: Warning.
Hazard statements:
H226: Flammable liquid and vapour.
H303: May be harmful if swallowed.
H305: May be harmful if swallowed and enters airways.
H313: May be harmful in contact with skin.
H316: Causes mild skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H351: Suspected to cause cancer.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
Precautionary statements:
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing mist, vapours and spray.
P264: Wash hands and face thoroughly after handling.
P273: Avoid release to the environment.
P280: Wear impervious rubber gloves and boots, protective clothing and chemical safety goggles.
P301/310: IF SWALLOWED: Immediately call a POISON CENTER.
P302/352: IF ON SKIN: Wash with plenty of water and non-abrasive soap.
P303/361/353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [shower].
P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308/313: If exposed or concerned: Get medical attention.
P331: Do NOT induce vomiting.
P333/313: If skin irritation or rash occurs: Get medical advice.
P337/313: If eye irritation persists: Get medical advice.
P391: Collect spillage.
P403/233: Store in a well-ventilated place. Keep container tightly closed.
P403/235: Store in a well-ventilated place. Keep cool.
P405: Store locked up.
P501: Dispose of content/container to suitable landfill in accordance with local regulations.

Special labelling of certain mixtures:
None known.

Other hazards:
None known.

Toxicity:
Classification according to GHS: Cat. 5
Classification according to WHO: Cat. II
Classification according to GPIC: Cat. III

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture.
Composition:

Chemical Name	CAS	Conc. (m/v %)	Classification EC 1272/2008
Lufenuron 98% TC	103055-07-8	5 %	Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Isophorone	78-59-1	> 20%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Irrit. 2 (H319) STOT SE 3 (H335) Carc. 2 (H351)
Fluidar 100	N/A	> 60%	Acute Tox. 4 (H332) Acute Tox. 5 (H303) Skin Irrit. 3 (H316) Eye Irrit. 2B (H320) Asp. Tox. 2 (H305) Aquatic Acute 1 (H400) Flam. Liq. 3 (H226)
Toximul DL66	N/A	> 5%	Flam. Liq. 4 (H227) Skin Irrit. 2 (H315) Eye Irrit. 2/2A (H319) STOT SE 3 (H335) Asp. Tox. 2 (H305) Acute Tox. 5 (H303)
Toximul DM83	N/A	> 3%	Flam. Liq. 4 (H227) Skin Irrit. 2 (H315) Eye Irrit. 2/2A (H319) STOT SE 3 (H335) Asp. Tox. 2 (H305) Acute Tox. 5 (H303)

4. FIRST AID MEASURES AND PRECAUTIONS

Inhalation: Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation persists.
Skin contact: Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical attention if irritation persists.
Eye contact: Flush eyes with clean water. Lift eyelids to facilitate irrigation. If present, remove contact lenses and continue rinsing. Seek medical attention if irritation persists.
Ingestion: Rinse mouth with water. Give plenty of water to drink. Seek immediate medical assistance. Do not give anything by mouth to an unconscious person.
Anticipated acute effects: None known.
Anticipated delayed effects: None known.
Most important symptoms/effects: None known.
Advice to physician: Treat symptomatically and supportively. No specific antidote known.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).
Unsuitable Extinguishing Media: High volume water jet, as this will spread the fire. Use a water jet only to cool heated containers.
Specific hazards: Use appropriate extinguishing media for combustibles in the area. Residual organic material will emit toxic fumes when burning.
Special Fire Fighting Procedures: Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Keep upwind. Avoid inhaling hazardous vapours and fumes from burning materials. Remove containers from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Avoid contact with eyes and skin. Do not breathe in spray mist or fumes/vapours. Ventilate area of spill or leak, especially in contained areas.
Protective equipment: Refer to **Section 8** for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Emergency procedures: Alert firefighting personnel, evacuate unprotected personnel and animals.
Environmental Precautions: Prevent spilled product from entering sewers, waterways or ground water. This product is classified to be toxic to aquatic organisms and will cause long-term adverse effects in the aquatic environment. Any spillages or uncontrolled discharges into watercourses should be reported immediately to the police and the Department of Water/Environmental Affairs).
Methods and Materials for Containment: Contain spilled product by diking area with sand or earth.
Methods and Materials for Clean-up: Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:
Precautions for safe handling: Avoid contact with eyes and skin. Ensure adequate ventilation during handling and use. Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers tightly closed when not in use. In the case of contact with the product, refer to First Aid Measures – **Section 4.**
General occupational hygiene: Practice good hygiene when using this product. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.
Storage:
Conditions for safe storage: Keep under lock and key and out of reach of unauthorised persons, children and animals. Store the product in its original labelled container, tightly closed, in an isolated dry cool and well-ventilated area. Do not stored this product next to foodstuffs, feed and water supplies. Avoid cross contamination with other pesticides and fertilisers.
Incompatible substances and mixtures: Refer to product label.
Packaging material: Fluorinated plastic containers.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Permissible concentration

Components	Exposure limits	Type of exposure limit	Source
Isophorone	4 ppm	8-hour TWA	www.osha.gov

Engineering Controls:
It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure.
Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.
Personal Protective Equipment:
Respiratory Protection: If used in a poorly ventilated area (airborne concentrations exceed exposure limits), use a NIOSH approved air-purifying respirator with cartridges/canisters approved for organic vapours.
Skin and Body Protection: Employee must wear appropriate protective (impervious) clothing e.g. long-sleeved cotton overalls, rubber boots, face shield and hat to prevent repeated or prolonged skin contact with this product.
Hand Protection: Employee must wear appropriate chemical resistant rubber gloves (PVC or neoprene gloves) to prevent skin contact with this product.
Eye Protection: Employee must wear chemical resistant safety goggles or face-shield to prevent eye contact with this product. Contact lenses are not protective eye devices.
Emergency eyewash: Where there is any possibility that an employee's eyes may be exposed to this product; the employer should provide an eyewash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellowish brown liquid.
Odour: Typical pesticide odour.
pH (1% aqueous dilution): 6.8.
Melting point: Not available. 168.7°C to 169.4°C (technical material, depending on purity).
Freezing Point: Not available.
Boiling Point: Not available.
Flash Point: 45°C.

Flammability: Flammable.
Upper/lower explosion limits: Not available.
Vapour Pressure (mm Hg): Not available.
Relative Vapour Density: Not available.
Density/Relative density: 0.924 g/mℓ
Solubility: Not available.
n-octanol/water partition coefficient: K_{ow} (logP) = 5.12 (data for technical material).
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

10. STABILITY AND REACTIVITY

Chemical Stability: The product is stable for 2 years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50°C, preferably below 30°C, and not for prolonged periods in direct sunlight.
Reactivity: None known.
Possibility of Hazardous Reactions: None known.
Conditions to Avoid: Sensitive to freezing and warm storage conditions.
Incompatible Materials: None known.
Hazardous Decomposition Products: None known.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: Formulated product.
Classified according to GPIC (technical).
Oral LD_{50} (24 h) rat >2000 mg/kg.
Dermal LD_{50} (24 h) rat >2000 mg/kg.
Inhalation LC_{50} (4 h) rat 2.35 mg/ℓ
Calculated according to WHO.
Oral LD_{50} (24 h) rat: >2000mg/kg.
Dermal LD_{50} (24 h) rat: >2000 mg/kg.
Calculated according to GHS.
Oral LD_{50} (24 h) rat >2000 mg/kg.
Dermal LD_{50} (24 h) rat >2000 mg/kg.
Inhalation LC_{50} (4 h) rat > 8.5 mg/ℓ
Skin irritation/Corrosion: Causes mild skin irritation.
Eye Damage/Irritation: Causes serious eye irritation.
Skin Sensitization: May cause an allergic skin reaction.
Respiratory Sensitization: Not available.
Reproductive cell mutagenicity: Not available.
Carcinogenicity: Suspected to cause cancer.
Reproductive toxicity: Not available.
Specific target organ toxicity – single exposure: May cause respiratory irritation.
Specific target organ toxicity – repeated exposure: Not available.
Aspiration hazard: May be harmful if swallowed and enters airways.
Chronic Effects: Not available.
POTENTIAL ADVERSE EFFECTS:
Inhalation: May be harmful if inhaled.
Eye contact: Due to the inerts, this product causes serious eye irritation.
Skin contact: May be harmful in contact with skin.
Ingestion: May be harmful if swallowed.

12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic organisms with long lasting effects.

ECOTOXICITY DATA: Active ingredient: Lufenuron.

Fish:

LC_{50} (96 h)	Rainbow trout	>73 mg/ℓ
	Carp	>63 mg/ℓ
	Bluegill sunfish	>29 mg/ℓ
	Catfish	>45 mg/ℓ

Daphnia: Toxic

LC_{50} (48 h)		1.1 µg/ℓ

Algae:

EC_{50} (72 h)	Green algae	10 mg/ℓ

Birds:

Acute oral LD_{50}	Bobwhite quail	>2000 mg/kg.
	Mallard ducks	>2000 mg/kg.
Dietary LC_{50} (8 d)	Bobwhite quail	>5200 mg/kg.
	Mallard ducks	>5200 mg/kg.

Bees:
(LD_{50}, mg/bee):

	Oral	>197 mg/bee.
	Contact	>200 mg/bee.

Worms:

LC_{50} (14 d)		>1000 mg/kg.

Plants: No metabolites occurred in significant amounts in the investigated target crops (cotton, tomatoes).
ENVIRONMENTAL EFFECTS:
Animal: Major route of elimination was via faeces, with very little degradation.
Persistence and degradability: Lufenuron is rapidly degraded in biologically active soils under aerobic conditions.
Bio-accumulative Potential: Not determined.
Mobility in soil: Lufenuron showed a very strong adsorption onto soil particles: K_{oc} (mean value) 38 mg/g o.c.
Other adverse effects: Not determined.

13. DISPOSAL CONSIDERATION

Waste: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant. Where possible, recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.
Container: Emptied containers retain vapour and product residues. Do not re-use the empty container for any other purpose. Triple rinse empty containers by inverting the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to one third of that container. Add the rinsing's to the contents of the spray tank before recycling or destroying the container in the prescribed manner. Destroy the container by perforating and flattening and dispose of through an approved waste dumpsite, incineration plant or recycling company. Observe all labelled safeguards until container is destroyed.

14. TRANSPORT INFORMATION

UN NUMBER:	**1993**
Road Transport ADR/IRD:	
Class:	3
Packing Group:	III
UN Proper Shipping Name:	**Flammable liquid, N.O.S** (Lufenuron 50 mg/ℓ)
Maritime Transport IMDG/IMO:	
Class:	3
Packing Group:	III
UN Proper Shipping Name:	**Flammable liquid, N.O.S** (Lufenuron 50 mg/ℓ)
Marine Pollutant (Y/N):	Yes
Air Transport IATA/ICAO:	
Class:	3
Packing Group:	III
UN Proper Shipping Name:	**Flammable liquid, N.O.S** (Lufenuron 50 mg/ℓ)

Special/Environmental Precautions: None known.
Transport in bulk (according to MARPOL 73/78, Annex II and the IBC code): Not available.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation for the mixture:
OHSA 1993 Regulations for Hazardous Chemical Substances.

Relevant information regarding restrictions: None.
EU regulation: Regulation EC1272/2008 (EU-GHS/CLP)
Other national regulations: None.

Chemical Safety Assessment carried out? No

16. OTHER INFORMATION

Packed in fluorinated 1, 5, 10, 15, 20 & 25 litres plastic containers and labeled according to South African regulations and guidelines.
Additional H-statement (s) (formulants)
H227: Combustible liquid.
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H320: Causes eye irritation.
H332: Harmful if inhaled.
H333: May be harmful if inhaled.
Disclaimer: The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

END OF DOCUMENT

Compiled: September 2018
Reviewed: March 2019
Revision no: (2)
Next revision: March 2024

For detailed information on revisions, contact the Registration holder.