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SECTION 1. IDENTIFICATION**GHS product identifier:****Identification as on the label/Trade name:** HELIMAX™**Other means of identification:****Additional information/Alternative name:** None.**Recommended use of the chemical and restrictions on use:****Identified uses:** Biological agent for the control of bollworm larvae on crops.**Uses advised against:** Use only as directed.**Supplier's details:**

River Bioscience (Pty) Ltd
5th Floor, Fairview House, Fairview Office Building
66 Ring Road,
Greenacres,
Gqeberha,
6045,
South Africa

Emergency phone number:

River Bioscience Head Office: +27 41 373 1409 (office hours)

Griffon Poison Information Centre: +27 82 446 8946 (national / 24 hours)

Poison Information Helpline: +27 861 555 777 (national / 24 hours)

Hazcall24 (Transport / Spill Emergency): +27 860 444 4111 (national / 24 hours)

SECTION 2. HAZARD IDENTIFICATION**Classification of the substance or mixture:****The mixture is classified according to:** United Nations, Globally Harmonized System of Classification, 9th Edition, published 2021.

Hazard classes	Hazard classification category
Skin Sensitization	Category 1

GHS label elements, including precautionary statements:

Signal Word: Warning.

Hazard Statements: May cause allergic skin reaction.

Hazard pictograms: Exclamation mark.

Precautionary statements:

Read the label before use.

Keep out of reach of children and animals.

Avoid breathing spray.

Wear protective clothing.

Contamination work clothing should not be allowed out of the workplace.

Dispose of in accordance with local regulations.

Other hazards which do not result in classification:

None.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS
Substance/Mixture:

Mixture.

Chemical identity of the ingredients (IUPAC)	CAS –No.	Concentration (% v/v)	Classification
	EC-No.		GHS 9 th Edition
<i>Helicoverpa armigera</i> nucleopolyhedrovirus (HearNPV)	N/A	20%	Not classified as hazardous
	N/A		
Glycerine	56-81-5	50%	Not classified as hazardous
	200-289-5		

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. The hazard class in Section 2 has been assigned to the mixture due to the production method used and not due to the individual ingredients present in the mixture.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

Description of necessary first aid measures:

In case of inhalation: If breathed in, remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. In case of discomfort seek medical attention.

In case of skin contact: If skin irritation or rash occurs, wash with plenty of water. Take off contaminated clothing and wash it before re-use. Seek medical advice if symptoms persist.

In case of eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. Seek medical advice if symptoms persist.

In case of ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention if you feel unwell.

Most important symptoms/effects, acute and delayed:

Skin contact: May cause an allergic skin reaction in sensitive individuals.

Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURE

Extinguishing media:

Suitable extinguisher media: Use an extinguishing agent suitable for the surrounding fire: alcohol-resistant foam, dry chemical, or carbon dioxide.

Unsuitable extinguishing media: Water jets or high-pressure water jets.

Special hazards arising from the mixture:

Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons, aldehydes, and other products of combustion.

Special protective actions for fire-fighters:

Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Be sure to use an approved/certified respirator or equivalent.

Water spray should only be used to keep fire-exposed containers cool, flush spills away from exposures, disperse vapours and protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, municipal sewers, or drinking water supply.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Isolate area. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk-through spilt material. Avoid breathing mists. Provide adequate ventilation.

For emergency responders: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Avoid inhalation of mists. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions:

Will not harm the environment. Prevent contamination of food, feeds and drinking water. Prevent drift of spray mist onto other crops, grazing, rivers, dams, and areas not under treatment

Methods for containment and cleaning up:

For small spills: Contain spilled material if possible. Collect in suitable and properly labelled containers. Absorb with materials such as: sand, earth, vermiculite, or diatomaceous earth

For large spills: Contain and collect spillage with non-combustible, absorbent material e.g., sand, earth, vermiculite or diatomaceous earth and place in well labelled container for disposal. Scrub the area with 1-5% bleach solution. Rinse empty container three times with a volume of water equal to 10% of the volume of the container. Add the rinsing's to the contents of the spray tank. Destroy empty container and do not use for any other purpose.

Dispose and or manage in accordance with the appropriate national or international legislation where the product may be in use.

Reference to other sections:

See section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See section 13 for information on disposal.

Additional information:

None know.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Keep away from children and animals. Prevent contamination of food, feeds and drinking water. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing.

Advice on general safe handling: Read the label before use. Use only as directed.

Advice on general occupational hygiene: Do not eat drink or smoke when handling this product.

Conditions for safe storage, including incompatibilities:

Use as directed. While in use, the container must be kept cool and in the shade. The container must not be exposed directly to sunlight. Store away from foodstuffs and animal feed.

Specific storage requirements: Shelf-life of 30 months from date of manufacture if stored at temperature $\leq 4^{\circ}\text{C}$.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control parameters:**

Occupational exposure limits (OEL): None known.

Biological exposure indices (BEI): None known.

Additional exposure limits under the specific conditions of use: None known.

Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice. Use in a well-ventilated area. Wash hands before breaks and at the end of workday. A Risk Assessment should be conducted before handling is to commence to determine specific exposure control. Ensure that eyewash stations and safety showers are close to the workstation location.

Individual protection measures, such as personal protective equipment (PPE):

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Use safety glasses. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. Ensure that eyewash stations are close to the workstation location.

Skin protection: Wear appropriate clothing for task or operation. Use chemical resistant gloves. Examples of glove barrier materials include nitrile/butadiene rubber. 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. Keep working clothes separately. Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Ensure that safety showers are close to the workstation location.

Respiratory protection: For most conditions no, respiratory protection should be needed; however, if discomfort is experienced or when the Risk Assessment shows respiratory protection is required, use an approved air-purifying respirator.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical state: Aqueous suspension concentrate

Colour: Light brown with beige sediment

Odour: Earthy

Melting point/Freezing point (°C): Not applicable.

Boiling point/range (°C): Not applicable.

Flammability: Not applicable.

Upper/lower flammability/explosive limits: Not applicable.

Flash point (°C): Not applicable.

Auto-ignition temperature (°C): Not applicable.

Decomposition temperature: Not applicable.

pH (at concentration): 6.0

Viscosity (dynamic) (mPa·s): 6.05

Water solubility (g/l) at 20°C: Insoluble.

n-Octanol / Water partition coefficient: Not applicable.

Vapour pressure (20°C): Not applicable.

Density / relative density (20°C) (g/ml): 1.180

Relative vapour density: Not applicable.

Particle characteristics (µm): 1.2-1.7 (length and breadth)

Physical hazards:

None known

SECTION 10. STABILITY AND RELIABILITY

Reactivity:

No specific test data related to reactivity available for this product or its ingredients.

Chemical stability:

Stable under normal conditions of use. No dangerous reactions known under normal conditions of use.

Possibility of hazardous reactions:

Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid:

Heat (particularly above 38°C), direct UV irradiation on the product and alkaline or acidic conditions (pH below 4 or above 9) will cause rapid degradation and neutralisation.

Incompatible materials:

Copper based products.

Hazardous decomposition products:

Not known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological health effects:

Acute toxicity: Acute toxicity oral for mice NOAEL.

Skin corrosion/irritation: Not a skin irritant.

Serious eye damage/irritation: Not an eye irritant.

Respiratory or skin sensitization: May cause an allergic skin reaction in sensitive individuals.

Germ cell mutagenicity: No information available.

Carcinogenicity: No information available.

Reproductive toxicity: No information available.

STOT-single exposure: No information available.

STOT-repeated exposure: No information available.

Aspiration hazard: No information available.

Information on the likely routes of exposure:

No information available.

Symptoms related to the physical, chemical, and toxicological characteristics:

No known symptoms.

Delayed/Immediate/Chronic effects from short- and long-term exposure:

No information available.

Numerical measures of toxicity (ATE):

ATE Calculation not required.

Interactive effects:

No information available.

Other information:

Baculoviruses are not known to cause any adverse effects in terms of human health.

SECTION 12. ECOLOGICAL INFORMATION

Information on ecotoxicological effects:

Toxicity: Non- toxic for aquatic invertebrates and fish.

Persistence and degradability: Persistence in the environment is likely to be brief. While natural levels of baculoviruses may be found in the environment, any exposure to UV irradiation would render them ineffective within a couple of days. All ingredients of the mixture are readily biodegradable.

Bio accumulative potential: Where exposed in the environment, UV degradation is likely to occur. Baculoviruses may survive for long periods of time if in a protected environment but are also naturally present within the environment.

Mobility in soil: Baculoviruses have no capacity to generate their own movement. They are therefore completely dependent on extraneous factors for mobility.

Other adverse effects: Categorised as harmless against four indicator species of invertebrate natural enemies, important in citrus ecosystems, in tests conducted by Citrus Research International (Hattingh, V. 1998. Outspan Citrus Centre Annual Research Report, Nelspruit pp. 214-221) and accepted by AVCASA.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods:

Treat as hazardous waste and dispose of in accordance with national or international regulations as appropriate.

Container disposal methods: Rinse empty container three times with a volume of water equal to 10% of the volume of the container. Add the rinsing's to the contents of the spray tank. Destroy empty container and do not use for any other purpose.

Physical/chemical properties affecting disposal: None known.

Special precautions for incineration or landfill: Do not burn container or product. Recycle as far as possible.

SECTION 14. TRANSPORT INFORMATION

Transporting/Shipping information:

	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN-Number	Not regulated	Not regulated	Not regulated
UN Proper shipping name:	Not required	Not required	Not required
Transport hazard class:	Not required	Not required	Not required
Packaging group:	Not required	Not required	Not required
Environmental hazards:	No	No	No
Special precautions for user:	Not required	Not required	Not required
Transport in bulk according to IMO instruments:	Not required	Not required	Not required

Other information:

Store at temperatures not exceeding 4°C.

SECTION 15. REGULATORY INFORMATION**Safety, health, and environmental regulations specific for the product in question:**

Regulatory status of the substance/mixture: Registered under the "Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No 36 of 1947), regulating agricultural remedies in South Africa.

Relevant safety/health/environmental regulations: The labels and SDS of this product complies with the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), and the Regulations for Hazardous Chemical Agents, 2021, in South Africa.

SECTION 16. OTHER INFORMATION**Preparation date and revision number:**

Current version date:	Current version:
2022/07/01	1.0 / 2022
2023/07/01	1.0 / 2023
2024/09/01	1.0 / 2024

Revision changes: Section 1: Update of emergency phone numbers.

Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Notice to readers:

Employers should use this information only as a supplement to other information gathered by them and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees.

This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.