Bayer CropScience

Material Safety Data Sheet

VIOS™ G3

MSDS Number: 102000016695
MSDS Version 1.0
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SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name	VIOS™ G3
MSDS Number	102000016695
PCP Registration No.	29643

Bayer CropScience Inc
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Calgary, Alberta T2C 3G3
Canada

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-888-283-6847

SECTION 2. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview	Caution! Harmful if swallowed or absorbed through skin. Moderate eye irritation. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling.
Physical State	liquid
Odor	characteristic
Appearance	off-white
Exposure routes	Eye contact, Skin contact, Inhalation, Ingestion
Immediate Effects	
Eye	Moderate eye irritation. Avoid contact with eyes.
Skin	May cause slight irritation. Harmful if absorbed through skin. Avoid contact with skin and clothing.
Ingestion	Harmful if swallowed. Do not take internally.
Inhalation	Avoid inhalation of vapour or mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects.
Potential Environmental Effect	This product may cause adverse effects on non-target plants. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Toxic to wildlife.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Average % by Weight
Tembotrione	335104-84-2	28.30
Thiencarbazone-methyl	317815-83-1	5.60
Isoxadifen-ethyl	163520-33-0	
Glycerine	56-81-5	
Polyarylphenylether sulfate, ammonium salt	119432-41-6	

SECTION 4. FIRST AID MEASURES

General
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Skin
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Notes to physician
Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

Flash point > 93.3 °C / 199.9 °F

Autoignition temperature no data available

Lower Flammability Limit no data available

Upper Flammability Limit no data available

Fire and Explosion Hazards	In the event of fire the following may be released: Carbon monoxide (CO) Hydrogen cyanide (hydrocyanic acid) Hydrogen fluoride Hydrogen chloride (HCl) nitrogen oxides (NOx) Sulphur oxides
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Fire Fighting Instructions	Keep out of smoke. Fight fire from upwind position. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Do not allow run-off from fire fighting to enter drains or water courses. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.
Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact vegetation.

SECTION 7. HANDLING AND STORAGE

Handling procedures	Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.
Storing Procedures	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.
Work/Hygienic Procedures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Min/Max Storage Temperatures

Recommended minimum transport/storage temperature: -10 °C / 14 °F
Recommended maximum transport/storage temperature: 40 °C / 104 °F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection

Follow all label instructions. Train employees in safe use of the product.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

Eye/Face Protection

Chemical resistant goggles must be worn.

Hand protection

Chemical resistant nitrile rubber gloves

Body Protection

Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

Tembotrione	335104-84-2	OES BCS*	TWA	0.15 mg/m3
Isoxadifen-ethyl	163520-33-0	OES BCS*	TWA	1 mg/m3
Glycerine	56-81-5	OEL (QUE)	TWA	10 mg/m3
		CAD AB OEL	TWA	10 mg/m3
		CAD BC OEL	TWA	10 mg/m3
		CAD BC OEL	TWA	3 mg/m3
		CAD ON OEL	TWAEV	10 mg/m3
		OEL (QUE)	TWA	10 mg/m3

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

off-white

Physical State

liquid

Odor

characteristic

pH	3.2 (10 %)
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	1.22 g/cm³ at 20 °C
Evaporation rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Partition coefficient: n-octanol/water	no data available

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	freezing
Hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Chemical Stability	Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the technical-grade active ingredients, Thiencarbazone-methyl and Tembotrione, as well as, the herbicide safener, Isoxadifen-ethyl.

Acute oral toxicity	female rat: LD50: > 2,000 mg/kg
Acute dermal toxicity	rat: LD50: > 2,000 mg/kg
Acute inhalation toxicity	rat: LC50: > 2.0 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. highest concentration tested No deaths rat: LC50: > 8.0 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin irritation	rabbit: slight irritation

Eye irritation rabbit: Mild eye irritation.

Sensitisation guinea pig: Non-sensitizing.

Chronic toxicity Thiencarbazone-methyl caused urinary tract irritation in long term studies in mice, rats and dogs.

Tembotrione caused effects in the eye, kidney, liver, pancreas, thyroid and/or gall bladder in chronic studies in mice, rats and dogs. In addition, hematologic parameters were affected in the rat and dog.

Isoxadifen-ethyl caused kidney and/or liver effects in chronic studies in rats and dogs.

Assessment Carcinogenicity

Thiencarbazone-methyl was not carcinogenic in a lifetime feeding study in rats. In a lifetime feeding study in mice, there was a low incidence of urinary bladder tumors at high doses secondary to the chronic irritation due to the presence of bladder stones. Thiencarbazone-methyl was considered not to be directly carcinogenic in mice.

Tembotrione was not carcinogenic in lifetime feeding studies in rats and mice.

Isoxadifen-ethyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH
None.
NTP
None.
IARC
None.
OSHA
None.

Reproductive toxicity REPRODUCTION:
Thiencarbazone-methyl was not a reproductive toxicant in a two-generation study in rats. Thiencarbazone-methyl caused toxicity in offspring at doses producing systemic toxicity in adult rats.

Tembotrione was not a reproductive toxicant in a multi-generation reproduction study in rats.

Isoxadifen-ethyl was not considered a primary reproductive toxicant. Decreased pup body weights occurred causing a delay in sexual maturation, however, these effects were considered secondary to maternal toxicity.

DEVELOPMENTAL TOXICITY:
Thiencarbazone-methyl was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed but were considered secondary to maternal toxicity.

Tembotrione was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed but were considered secondary to maternal toxicity.

Isoxadifen-ethyl was not a developmental toxicant in rats and rabbits.

Assessment neurotoxicity

Thiencarbazone-methyl was not a neurotoxicant in acute and subchronic neurotoxicity screening studies in rats.

Tembotrione was not a neurotoxicant in acute, subchronic and developmental neurotoxicity screening studies in rats.

Isoxadifen-ethyl did not demonstrate the potential to cause neurotoxicity in standard toxicity studies using mice, rats, rabbits and dogs.

Mutagenicity

Thiencarbazone-methyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Tembotrione was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Isoxadifen-ethyl was not genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish

Rainbow trout (Oncorhynchus mykiss)
LC50: > 104 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient thiencarbazone-methyl.

Lepomis macrochirus (Bluegill sunfish)
LC50: 0.22 mg/l
Exposure time: 96 h
The value mentioned relates to isoxadifen-ethyl.

Toxicity to aquatic plants

Pseudokirchneriella subcapitata
Growth rate
IC50: 1.017 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient thiencarbazone-methyl.

Lemna gibba (duckweed)
Growth rate
IC50: 0.00131 mg/l
Exposure time: 7 d
The value mentioned relates to the active ingredient thiencarbazone-methyl.

Pseudokirchneriella subcapitata
Growth rate
IC50: > 1.26 mg/l
Exposure time: 72 h
The value mentioned relates to isoxadifen-ethyl.
No acute toxicity was observed at its limit of water solubility.

Acute Toxicity to Aquatic Invertebrates

Water flea (Daphnia magna)
EC50: > 98.6 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient thiencarbazone-methyl.

Water flea (Daphnia magna)
EC50: > 0.51 mg/l
Exposure time: 48 h
The value mentioned relates to isoxadifen-ethyl.
No acute toxicity was observed at its limit of water solubility.

Environmental precautions

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants. Apply this product as specified on the label.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal regulations.

Container Disposal

Follow advice on product label and/or leaflet. Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

SECTION 14. TRANSPORT INFORMATION

TDG

Not dangerous goods / not hazardous material

CFR

Not dangerous goods / not hazardous material

IMDG

UN-Number	**3082**
Class	9
Packaging group	III

Marine pollutant	Marine Pollutant
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL, ISOXADIFEN-ETHYL SOLUTION)

IATA

UN-Number	**3082**
Class	9
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL, ISOXADIFEN-ETHYL SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15. REGULATORY INFORMATION

PCP Registration No. 29643

US Federal Regulations

TSCA list

Isoxadifen-ethyl	163520-33-0
Glycerine	56-81-5

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Isoxadifen-ethyl	163520-33-0

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Glycerine	56-81-5	IL, MN, RI

Canadian Regulations

Canadian Domestic Substance List

Glycerine	56-81-5
Polyarylphenylether sulfate, ammonium salt	119432-41-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels
None.

International Regulations
European Inventory of Existing Commercial Substances (EINECS)

Glycerine	56-81-5

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2	Flammability - 1	Reactivity - 1	Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1	Flammability - 1	Physical Hazard - 1	PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Material Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

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