Safety Data Sheet

1. Identification

Product identifier

VIVANDO®

Recommended uses and restrictions on use (if any)

Recommended use:
crop protection product, fungicide.

Restricted use:
Use according to label.

Manufacturer / Supplier

BASF New Zealand Limited
5E City Works Depot,
77 Cook Street
Auckland 1010
NEW ZEALAND
Phone: + 64 9 255 4300
0800 932 273
E-mail address: reception@basf-nz.co.nz

Emergency telephone number

National Poisons Centre: 0800 764 766
BASF Emergency Advice Number: 0800 944 955 (24 hour advice in an emergency only)

2. Hazard Identification

Classification of the substance or mixture

Carcinogenicity : Category 2
Designed for biocidal action

GHS Label Elements, including Precautionary Statements:

Signal Word:
WARNING.

Pictograms:

GHS Hazard Statements

H351	:	Suspected of causing cancer.
	:	Designed for biocidal action.

GHS Precautionary Statements (Prevention)

P103	:	Read label before use.
P201	:	Obtain special instructions before use.
P202	:	Do not handle until all safety precautions have been read and understood.
P280	:	Wear protective gloves, protective clothing, eye/face protection.
P281	:	Use personal protective equipment as required.

GHS Precautionary Statements (Response)

P308 + P313	:	IF exposed or concerned: Get medical advice/attention.

GHS Precautionary Statements (Storage)

P405	:	Store locked up

GHS Precautionary Statements (Disposal):

P501	:	Dispose of contents/container to hazardous or special waste collection point. Information regarding disposal considerations can be found in section 13.

Other hazards

No other hazards known.
See section 12 - Results of PBT and vPvB assessment.

To avoid risks to human health and the environment, comply with the instructions for use.
If applicable, information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition/Information on Ingredients

Substances
Not applicable

Mixtures
Hazardous ingredients (GHS)
According to UN GHS criteria

Metrafenone
Content (W/W): 42 %
CAS Number: 220899-03-6

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts
Content (W/W): <5 %
CAS Number: 68425-94-5

1,2-benzisothiazol-3(2H)-one
Content (W/W): <0.05 %
CAS Number: 2634-33-5

Propane-1,2-diol
Content (W/W): <10 %
CAS Number: 57-55-6

4. First-Aid Measures

Description of necessary first aid measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms:
Information, i.e. additional information on symptoms and effects may be included in the GHS labelling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far.

Indication of any immediate medical attention and special treatment needed

Treatment:
Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Medical advice:
Contact the National Poisons and Hazardous Chemicals Information centre.
Phone 0800 POISON (0800 764 766).

5. Fire-Fighting Measures

Suitable extinguishing media
Water spray, dry powder, foam, carbon dioxide

Specific hazards
carbon monoxide, carbon dioxide, hydrogen bromide, nitrogen oxides, halogenated compounds
The substances/groups of substances mentioned can be released in case of fire.

No specific precautions necessary. The substance is non-combustible. Product is not explosive.

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus and chemical-protective clothing.

Precautions for fire-fighters
In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions, Protective equipment and Emergency procedures

Do not breathe vapour/spray.
Use personal protective clothing.
Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil.
Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.
Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labelled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

7. Handling and Storage

Precautions for safe handling
No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Conditions for safe storage, including any incompatibilities
Segregate from foods and animal feeds.

Further information on storage conditions:
Keep away from heat. Protect from direct sunlight.

Storage stability: 60 months.

Protect from temperatures below 0°C.
The product can crystallize below the limit temperature.

Protect from temperatures above 35°C.
Changes in the properties of the product may occur if substance / product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

Control parameters

Occupational exposure limits

Component:	Propane-1,2-diol
CAS Number:	57-55-6
TWA Value:	10 mg/m^3 Particulate (source: WES 2022)
TWA Value:	150 ppm / 474 mg/m^3 Vapor and Particulates (source: WES 2022)

Engineering controls

Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Respiratory protection:
Respiratory protection not required.

Hand protection:
Suitable chemical resistant safety gloves (EN 374-1) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374-1): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	Liquid
Colour:	Beige
Odour:	Aliphatic
Odour threshold:	Not determined due to potential health hazard by inhalation
pH value:	Approx. 7 - 9 (water, 20°C) (measured with the undiluted substance)
Melting point:	Approx. 0°C (Information applies to the substance)
Boiling point:	Approx 100°C (Information applies to the substance)
Flash point:	Non-flammable
Evaporation rate:	Not applicable
Flammability:	Not applicable
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Ignition temperature:	379°C
Vapour pressure:	Approx. 23 hPa (20°C) (Information applies to the solvent)
Density:	Approx. 1.19 g/cm^3 (20°C)
Relative vapour density (air):	Not applicable
Solubility in water:	Dispersible
Partitioning coefficient n-octanol/water (log Pow):	Not applicable

Thermal decomposition:	205°C, 30 kJ/kg 290°C, 750 kJ/kg Not a substance liable to self-decomposition according to UN transport regulations, Class 4.1.
SADT:	>75°C
Explosion hazard:	Not explosive
Fire promoting properties:	Not fire-propagating
Viscosity, dynamic:	Approx. 129 mPa.s (20°C)

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
See SDS section 7 - Handling and storage.

Thermal decomposition:	205°C, 30 kJ/kg (DSC)
Thermal decomposition:	290°C, 750 kJ/kg (DSC)
Thermal decomposition:	Not a substance liable to self-decomposition according to UN transport regulations, Class 4.1

Incompatible materials / Substances to avoid
Strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products
No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Acute toxicity

Assessment of acute toxicity:
Virtually non-toxic after single ingestion. Virtually non-toxic by inhalation. Virtually non-toxic after a single skin contact. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:

LD50 rat (oral):	>5,000 mg/kg
LC50 rat (by inhalation):	>3.7 mg/l 4 h No mortality was observed. Highest concentration capable of testing. An aerosol was tested.
LD50 rat (dermal):	>5,000 mg/kg

Skin Corrosion / Irritation

Assessment of irritating effects:
Not irritating to the skin. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant

Serious Eye Damage / Irritation

Assessment of irritating effects:
Not irritating to the eyes. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
Serious eye damage/irritation rabbit: non-irritant.

Respiratory or Skin sensitization

Assessment of sensitization:
There is no evidence of a skin-sensitizing potential. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
Guinea pig maximisation test: Skin sensitizing effects were not observed in animal studies.

Germ cell mutagenicity

Assessment of mutagenicity:
Mutagenicity tests revealed no genotoxic potential. The product has not been tested. The statement has been derived from the properties of the individual components.

Carcinogenicity

Assessment of carcinogenicity:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Metrafenone
Assessment of carcinogenicity:
When given in high doses, the substance was carcinogenic in animal studies. Based on its mechanism of action, a carcinogenic potential is not expected after exposure to low doses.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Developmental toxicity

Assessment of teratogenicity:
Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. The product has not been tested. The statement has been derived from the properties of the individual components.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Remarks: The product has not been tested. The statement has been derived from the properties of the individual components.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organ-toxicity was observed after repeated administration to animals. The product has not been tested. The statement has been derived from the properties of the individual components.

Aspiration hazard

No aspiration hazard expected. The product has not been tested. The statement has been derived from the properties of the individual components.

Other relevant toxicity information

Misuse can be harmful to health.

12. Ecological Information

Ecotoxicity - Aquatic

Assessment of aquatic toxicity:
Hazardous to aquatic life.
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to fish:
LC50 (96 h): >104 mg/l, *Oncorhynchus mykiss*

Aquatic invertebrates:
EC50 (48 h): >1.98 mg/l, *Daphnia magna*
No effects at the highest test concentration.

Aquatic plants:
EC50 (72 h): >2.25 mg/l (growth rate), *Selenastrum capricornutum*
No effects at the highest test concentration.

NOEC (72 h): 0.294 mg/l (biomass), *Pseudokirchneriella subcapitata*

Ecotoxicity - Terrestrial

Assessment of terrestrial toxicity:
Not classified as hazardous to terrestrial vertebrates. The product has not been tested. The statement has been derived from the properties of the active ingredient, Metrafenone.

Toxicity to birds:
Acute oral LD50: >2,025 mg ai/l, *Colinus virginianus*, Metrafenone

Toxicity to soil organisms:
LC50 (14d): >500 mg ai/kg, *Eisenia fetida*, Metrafenone

Toxicity to Pollinators:
LD50 (oral): >114 µg ai/bee, *Apis mellifera*, Metrafenone
LD50 (contact): >100 µg ai/bee, *Apis mellifera*, Metrafenone

Persistence and degradability

Assessment biodegradation and elimination (H2O):
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Metrafenone
Assessment biodegradation and elimination (H2O):
Not readily biodegradable.

Bioaccumulative potential

Assessment bioaccumulation potential:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Metrafenone
Bioaccumulation potential:
Bioconcentration factor: 140 - 180 (42 d), *Lepomis macrochirus*

Mobility in soil

Assessment transport between environmental compartments:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Metrafenone
Assessment transport between environmental compartments:
Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Results of PBT and vPvB assessment

The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

Other adverse effects

Other ecotoxicological advice:
Do not discharge product into the environment without control.
Do not apply onto or into water.

13. Disposal Considerations

Container:

Triple rinse empty container and add rinsate to the spray tank. Recycle through Agrecovery (0800 247 326, www.agrecovery.co.nz). Do not use container for any other purpose.

Product:

Dispose of this product only by using according to the label or at an approved facility. Do NOT burn product. Do NOT contaminate water with product or used container.
Waste product/packaging may be sent to a suitable incineration plant, observing local regulations.

Contaminated Packaging:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance / product.

14. Transport Information

Commercial transport:

Classified as dangerous good(s) for Land/rail (ADR/RID), sea (IMDG) and air transport (ICAO/IATA):

Land / Rail / Road (ADR/RID):

UN number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains Metrafenone)
Transport hazard class(es) / UN DG Class:	9, (EHSM)
Packing group:	III
Environmental hazards:	Marine pollutant
HAZCHEM:	3Z
IERG Number:	47
Special precautions when transporting the substance:	None known

Sea transport (IMDG):

UN number:	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains Metrafenone)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	marine pollutant
Marine pollutant:	Yes
Special precautions when transporting the substance:	None known

Air transport (IATA / ICAO):

UN number:	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains Metrafenone)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	Yes, marine pollutant
Special precautions when transporting the substance:	None known

Additional Information:

Product may be shipped as non-hazardous in suitable packages containing a net quantity of 5 L or less under the provisions of various regulatory agencies: ADR, RID, ADN: Special Provision 375; IMDG: 2.10.2.7; IATA: A197; TDG: Special Provision 99(2); 49CFR: §171.4 (c) (2) and also the Special Provision 375 in Appendix B which is regulated in China “Regulations Concerning Road Transportation of Dangerous Goods Part 3: Index of dangerous goods name and transportation requirements” (JT/T 617.3).

15. Regulatory Information

HSNO Approval Number

HSR100045.
See www.epa.govt.nz for approval conditions.

Tolerable Exposure Limit or Environmental Exposure Limit

TEL:	None set
EEL:	None set

Relevant Regulatory Requirements

Qualifications:	Not required
Certified Handler:	Not required
Tracking:	Not required
Record Keeping:	Not required
Restricted to Workplace:	Not applicable
Controlled substance licence:	Not required

ACVM Registration

P007973
See www.foodsafety.govt.nz/acvm for registration conditions.

International Agreements related to the substance such as Montreal Protocol, the Stockholm Convention or Rotterdam Convention

not applicable

16. Other Information

Date of preparation of the SDS

29 November 2023

Key or legend to abbreviations and acronyms used

ACGIH	The American Conference of Governmental Industrial Hygienists
ACVM	Agricultural Compounds and Veterinary Medicines
ADN	International Carriage of Dangerous Goods by Inland Waterways (EU)
ADR/RID	Dangerous Goods for Road / Rail
DG	Dangerous Goods
EC50	Median effective concentration
EEL	Environmental Exposure Limit
EHSM	Environmental Health and Safety Management
EPA	Environmental Protection Authority
EU	European Union
GHS	Globally Harmonised System
ICAO	International Civil Aviation Organisation
IATA	International Air Transport Association
IERG	International Emergency Response Guide
IMDG	International Maritime Dangerous Goods
LD50	Lethal concentration to 50% of the test population
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OEL	Operator Exposure Limits
PBT or vPvP	Persistent / Bioaccumulative / Toxic or very Persistent / very Bioaccumulative
SADT	Self-accelerating Decomposition Temperature
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
TDG	Transportation of Dangerous Goods
TEL	Tolerable Exposure Limit
TLVs	Threshold Limit Values
UN GHS	United Nations Globally Harmonised System
WES	Workplace Exposure Standards
49CFR	Code of Federal Regulations Title 49 for Transportation

For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.