



SAFETY DATA SHEET DITERA® DF

Revision Date: 19/09/2022
Revision Number: 01

1. PRODUCT AND COMPANY IDENTIFICATION

Identification of the product/preparation

Product Name: DITERA DF
Registration Number: L8477
Product Number: VBC-0091
Product use: Biological Nematicide (agricultural use)

Active Ingredient

Myrothecium verrucaria killed fermentation solids and solubles
CAS Number: N/A

Manufacturer

Company Name: VALENT BIOSCIENCES CORPORATION
Address: 1910 Innovation Way, Suite 100
Libertyville, Illinois 60048

Supplier

Company Name: PHILAGRO SOUTH AFRICA (PTY) LTD
Address: 1st Floor, The Corner Office
410 Lynnwood Road
LYNNWOOD RIDGE 0040
Telephone: +27(0) 12 348 8808
Fax: +27(0) 12 348 3500
E-mail Address: info@philagro.co.za

Emergency Telephone Numbers:

Medical information in case of poisoning

Griffon Poison Information Centre: +27(0) 82 446 8946
Tygerberg Hospital Poison Centre: +27(0) 86 155 5777

Relevant identified uses of the product and uses advised against

A biological contact nematicide for the control of nematodes in table grapes.
The product should not be used for any other purpose or in any other manner contrary to the information supplied on the product label.

2. HAZARD IDENTIFICATION

Classification of the substance or mixture

This product is classified as hazardous according to the criteria in South Africa - GHS classification and labelling of chemicals – SANS10234 and the Regulations for Hazardous Chemical Agents - 2021.



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Classification

HAZARD CLASS

Acute Toxicity (Inhalation – dust/mist)

CATEGORY

4

HAZARD STATEMENT NUMBER

H332

Label Elements

South Africa. GHS classification and labelling of chemicals – SANS10234, and the Regulations for Hazardous Chemical Agents - 2021.

Pictogram/s:



Signal Word:

Warning

Hazard Statements:

H332 Harmful if inhaled.

Precautionary Statements:

General

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

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P271 Use only outdoors or in a well-ventilated area.

Response

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P317 Get medical help.

Disposal

P501 Dispose of contents or container to an approved waste disposal facility and in accordance with national regulations.

Other Hazards

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Trade Name:

DITERA DF

IUPAC/Chemical Name (active ingredient):

*Myrothecium verrucaria** strain AARC-0255 killed fermentation solids and solubles

Molecular Formula:

N/A

Chemical Family:

Fungi, *Myrothecium verrucaria*

Formulation:

Dry Flowable



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Ingredients with Hazard Concerns (GHS):

According to UN GHS criteria.

Hazardous Component	CAS Number	Weight - %	GHS Classification
Myrothecium verrucaria fermentation solids and soluble	None	90%	Not classified
Kaolin Clay	1332-58-7	2	STOT - Repeated Exposure, Category 1
Other ingredients	Trade Secret	8%	Not classified

NOTE 1: The other ingredients not included above, do not cause or contribute towards the correct GHS classification of DITERA® DF and is therefore, in terms of the South African Regulations for Hazardous Chemical Agents - 2021; Regulation 14(b), not listed.

4. FIRST AID MEASURES

Description of First-Aid Measures

General Advice In all cases of doubt, seek medical attention.

Eye Contact Remove from source of exposure. Flush with copious amounts of water. Remove contact lenses, if present and easy to do, after the first 5 minutes, then continue rinsing. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic /supportive care as necessary.

Skin Contact Remove from source of exposure. Take off contaminated clothing. Flush with copious amounts of water. Cover irritated skin with an emollient. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Inhalation Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary. If person is not breathing, call 911, then give artificial respiration.

Ingestion Remove from source of exposure. Move person to fresh air. Do NOT induce vomiting. Give large quantities of water. If signs of toxicity occur, seek medical attention. Provide symptomatic /supportive care as necessary.

Medical Advice

No specific antidote. Treat symptomatically and supportive.

Most important symptoms/effects, acute and delayed

Acute: None known

Delayed: No information on significant adverse effects

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media For small fires, use carbon dioxide, dry chemical (powder) foam or water spray. Foam and dry chemicals are recommended to minimize the environmental impact. Do not use high volume water jets due to potential contamination. If water is used for firefighting, dike and collect water to prevent run-off from the site.

Specific hazards arising from the chemical None known. Harmful substances in the water runoff from fire control may have adverse environmental and biological effects.

Special protective equipment and Firefighters must wear emergency equipment including positive pressure self-contained breathing apparatus with a full-face mask. Remove unaffected containers from fire area if



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precautions for fire-fighters

possible. Keep fire exposed containers cool by spraying with water. Evacuate the area and fight the fire upwind and from a safe distance to avoid exposure to hazardous combustion products and the inhalation of hazardous vapours and fumes from burning material. Avoid pollution of waterways by run-off from the site. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local and national regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

Do not breathe in dust and avoid contact with eyes, skin and clothes. Ventilate the area of the spill, especially when in confined areas. Do not touch or walk through spilled material. Contain spills if it can be done without risk. Wear appropriate protective clothing recommended in Section 8 of the SDS.

Environmental precautions

Prevent further spillage if safe to do so. Do not allow the spilt product to enter water courses and drains and avoid contact with soil. Do not allow the spilt product to spread to other areas - keep the spilt material contained and isolated. Report spills and releases as required to appropriate authorities if the spilt product has caused environmental pollution (sewers, water ways, soil, or air).

Methods for cleaning up

In case of spill (solid) sweep up and place into sealable containers for disposal. Dig up heavily contaminated soil and place into drums. Use a damp cloth to clean floors and other objects, and also place in sealable container. Dispose of all waste and contaminated clothing in the same manner as waste chemicals (i.e., via an authorized disposal facility). Do not wash residues into drains or other waterways.

7. HANDLING AND STORAGE

Precautions for safe handling

Read the label before use. Use in a well-ventilated area (preferably outdoors). Prevent contact with eyes, skin, and clothing. Do not breathe in dust. Wear protective clothing and equipment during handling as described in Section 8 of the SDS. If clothing gets contaminated with the product, change to clean clothing promptly. Do not eat, drink, or smoke while handling the product. Wash hands and face thoroughly with soap and water after use. Keep containers closed when not in use.

Locate emergency showers and eye-rinsing facility near the work/handling area. Maintain good normal industrial hygiene and housekeeping practices in areas where the product is used/handled.

Conditions for safe storage, including any incompatibilities

The entrance to storage facilities should be granted only to appropriately trained personnel. Always store locked up and keep containers tightly closed. Store in the original, closed container. The formulation is stable if stored well ventilated, cool, and free of moisture and high humidity. Store away from direct sunlight. Store below 30°C. Keep out of reach of children, uninformed persons, and animals. Protect containers from physical damage. Check the condition of storage containers periodically. Do not store with seed, fertilisers, or foodstuffs to prevent contamination.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational Exposure Limits

Occupational exposure limits have not been established for the classified ingredients in South Africa.



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Appropriate engineering controls

Use with general or adequate local exhaust ventilation to maintain airborne concentrations as low as possible. Ensure adequate ventilation in confined areas. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal Protective Equipment

Respiratory Protection	Use dust/mist filtering respirator (MSHA/NIOSH approved number prefix TC-21C) or a NIOSH approved respirator with any N, P, R or HE filter).
Skin and Hand Protection	Wear protective clothing, including boots and gloves. Wash gloves when contaminated and dispose of and replace immediately when contaminated inside, when perforated, when contamination on the outside cannot be removed or when signs of damage. Protective coveralls, apron, shoes, and socks are required to prevent skin contact and contamination of personal clothing.
Eye/Face Protection	Wear goggles, safety glasses with side shields or full-face shield when splashing or spraying of materials is likely.
General Safety and Hygiene Measures	Handle the product in accordance with good industrial hygiene and safety practice. An eye wash fountain and safety showers should be available and easily accessible. Avoid contact with the skin, eyes and clothing and immediately remove all contaminated clothing. Wash the hands and/or face before breaks and at the end of the shift.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/physical state	Fine Granules (Solid)
Odour characteristics	Yeast-like
Colour	Light to dark brown
Density (g/ml)	Not determined.
Solubility in water (g/100mL) @ 20°C	Not determined.
Flammability	Not flammable.
Flash point (°C)	Not determined.
Flammable limits-LEL	Not determined.
Vapour pressure (mPa) at 25°C	Not applicable (solid)
Decomposition temperature (°C)	Not determined.
Boiling point range(°C)	Not applicable (solid)
Melting point (°C)	Not applicable.
pH (at 20 ± °C)	Not determined.
Auto-ignition temperature (°C)	Not determined.
Bulk density	0.49 ± 0.1 g/ml
Partition coefficient and 20°C:	Not determined.
Dynamic Viscosity (cps)	Not applicable (solid)
Kinematic Viscosity	Not applicable (solid)
Explosive properties	Not explosive
Oxidizing Properties	Not oxidizing

10. STABILITY AND REACTIVITY

Reactivity

The product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.



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Chemical Stability

Hazardous polymerization will not occur. Stable for 2 years under recommended storage and handling conditions.

Possibility of Hazardous Reactions

None known under conditions of normal use.

Conditions to Avoid

Avoid extreme temperatures (>50°C), storage without ventilation, moisture (humidity) or light.

Incompatible Materials

None known.

Hazardous Decomposition Products

Does not decompose when used for intended uses.

Decomposes on heating. Under burning conditions, this product may form toxic and irritating fumes including, carbon monoxide and carbon dioxide.

11. TOXOLOGICAL INFORMATION

Information on likely routes of exposure

Based on available data, classification criteria are met for Acute Toxicity (Inhalation). This product is for agricultural use; therefore, the most probable route of exposure is via skin or inhalation.

Information on toxicological effects

Acute toxicity:

Experimental toxicological data are available on the product.

DITERA DF has a low acute toxicity following dermal, oral or inhalation exposures.

Assessment of acute toxicity:

Product/ingredient Name	Dose Acute -	Species	Test Result
DITERA DF	>5000 mg/kg	Rat	LD ₅₀ Oral
DIPEL DF	>5000mg/kg	Rabbit	LD ₅₀ Dermal
DIPEL DF	>2.04 mg/L	Rat	LC ₅₀ Inhalation (Dust/Mist)

Skin Corrosion/Irritation:

Assessment of serious damage to skin:

Based on available data, the classification criteria are not met.

Not irritating.

Serious Eye Damage/Irritation:

Assessment of serious damage to eyes/eye irritation:

Based on available data, the classification criteria are not met.

Mildly irritating (cleared by day 7).

Respiratory/Skin Sensitization:

Assessment of sensitization:

Based on available data, the classification criteria are not met.

Guinea pig maximization test (GPMT) – not sensitizing.



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Germ cell mutagenicity:

Assessment of mutagenicity:

Based on available data, the classification criteria are not met.

Carcinogenicity:

Assessment of carcinogenicity:

Based on available data, the classification criteria are not met.

Reproductive toxicity and Developmental toxicity:

Assessment of reproduction toxicity:

Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure):

Based on available data, the classification criteria are not met.

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

Based on available data, the classification criteria are not met.

Aspiration hazard:

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The product is not toxic to aquatic organisms.

The product will not enter the environment under normal use if used as indicated on the label. Care should however be taken to avoid any additional release to ground water or sewage systems (even in small quantities), for example through inappropriate disposal.

No eco-toxicological data is available for the formulated product. This ecological assessment is based on data for the active ingredient.

Ingredient	Species and Genus	Exposure (hours/days)	Result in fresh water
<i>Myrothecium verrucaria</i>	Fish	96h	Acute LC ₅₀ : >100 mg/L

Environmental Effect	Description
Persistence and Degradability:	No data available.
Bioaccumulative Potential:	No data available.
Mobility in Soil:	No data available.
Other Adverse Effects:	No other known adverse effects on the environment.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all local regulations. Do not contaminate water sources food, or feed by storage of the product or disposal of used containers. The product or empty containers must not be disposed of as part of general waste.



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General container handling: Non-refillable container. Do not reuse for any purposes or refill the container. Triple rinse container (or equivalent) promptly after emptying.

Empty containers: Offer for recycling, if available. Recondition if appropriate or puncture and dispose of in a hazardous waste landfill, or by other procedures approved by the local authorities.

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



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14. TRANSPORT INFORMATION

	Land Transport (ADR/RID)	Inland Waterways (AND/ADNR)	Sea Transport (IMDG)	Air Transport (ICAO- TI/IATA-DGR)
UN Number	Not Regulated	Not Regulated	Not Regulated	Not Regulated
UN Proper Shipping Name	N/A	N/A	N/A	N/A
Transport Hazard Class	N/A	N/A	N/A	N/A
Transport Hazard Class Pictogram	N/A	N/A	N/A	N/A
Transport Subsidiary Class	N/A	N/A	N/A	N/A
Packaging Group	N/A	N/A	N/A	N/A
Environmental Hazard	N/A	N/A	N/A	N/A

15. REGULATORY INFORMATION

Relevant regulatory information regarding authorization, Safety Data Sheets, Occupational Exposure Limits, Hazardous Substances, Dangerous Goods Transport and Waste:

South Africa: Occupational Health and Safety Act 1993. Regulations for Hazardous Chemical Agents - 2021. Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947). Hazardous Substances Act, 1973 (Act No.15 of 1973). Regulations for Hazardous Chemical Agents – 2021. SANS11014:2010. Safety Data Sheet for Chemical Products – Content and Order of Sections. SANS10206: 2020. The Handling, Storage and Disposal of Pesticides. National Road Traffic Act, 1996 (Act No. 93 of 1996). SANS 10228:2012- The identification and classification of dangerous goods for transport by road and rail modes. National Environmental Management: waste Act 59 of 2008.

Zambia: The Pesticides and Toxic Substances Regulations. Statutory Instrument 20 of 1994 (Act No. 13 of 1994). Environmental Management (Licensing) Regulations, Statutory Instrument No. 112 of 2013 (“S.I 112 of 2013”). ZS 708 – Globally Harmonized System of Classification and Labelling of Chemicals. Environmental Management Act (EMA) of 2011.

Kenya: The Occupational Safety and Health Act, 2007 (Act No. 15 of 2007). The Factories and Other places of Work Act (CAP.514).

Angola: Executive Decree No.128/06 of November 23, general regulations of safety and health signals at work. 20041123.

Namibia: Labour Act 11 of 2007. Regulations relating to the Health and Safety of Employees at Work. Regulations relating to the Health and Safety of Employees at Work Government Notice 156 of 1997.

Botswana: Pesticides and Toxic Substances Regulations. 1994 (2006). Agrochemicals Regulations (under Section 31) (8th August 2003). Environmental and Pollution Control Act. 1990. Environmental Management (Licensing) Regulations. (S.I. No 112 of 2013). Statutory Instrument 20 of 1994 Act No. 13 of 1994.

16. OTHER INFORMATION

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.



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It is not applicable to unusual or non-standard uses of the product nor where instruction 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 or omissions or the consequence thereof.

Key to Abbreviations

AND	European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
COD	Chemical Oxygen Demand
EC ₅₀	50% of maximal Effective Concentration
EPA	Environmental Protection Agency (USA)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
Koc	Organic carbon adsorption coefficient
Log _{POW}	Logarithm of the octanol/water partition coefficient
LD ₅₀	Lethal Dose 50
LC ₅₀	Lethal Concentration 50
NOEC	No Observed Effect Concentration
OECD	Organization for Economic Co-operation and Development
OPPTS	Office of Prevention, Pesticides & Toxic Substances
RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
TG	Technical Grade
UN	United Nations
US EPA	United States Environmental Protection Agency

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