

SAFETY DATA SHEET



Dithane F-45® Rainshield®

Version 1.0 Revision Date: 02/03/2022 SDS Number: 800080003615 Date of last issue: -
Date of first issue: 02/03/2022

Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. IDENTIFICATION

Product name : Dithane F-45® Rainshield®

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE LLC
9330 ZIONSVILLE RD
INDIANAPOLIS, IN, 46268-1053
UNITED STATES

Customer Information Number : 800-992-5994

E-mail address : customerinformation@corteva.com

Emergency telephone : INFOTRAC (CONTRACT 84224).
800-992-5994 or 317-337-6009

Recommended use of the chemical and restrictions on use

Recommended use : End use fungicide product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin sensitization : Category 1

Reproductive toxicity : Category 2

GHS label elements

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.

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Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
mancozeb (ISO)	8018-01-7	36.6
Sodium lignosulfonate, sulfomethylated	68512-34-5	>= 3 - < 10
Sodium Phosphate Monobasic Monohydrate	10049-21-5	>= 1 - < 3
methenamine	100-97-0	>= 1 - < 3
Balance	Not Assigned	> 40

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

In case of skin contact : Take off contaminated clothing. Wash skin with soap and

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- plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.
- In case of eye contact : Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.
- If swallowed : No emergency medical treatment necessary.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help.
No specific antidote.
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.
Repeated excessive exposure may aggravate preexisting lung disease.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
Do not allow run-off from firefighting to enter drains or water courses.
- Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.
- Combustion products may include and are not limited to:
Sulfur oxides
Nitrogen oxides (NO_x)
Carbon oxides
- Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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Further information	:	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Use personal protective equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities. Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained. Prevent from entering into soil, ditches, sewers, underwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up	:	Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container. Keep in suitable, closed containers for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid formation of aerosol. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
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- Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapors/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Do not get on skin or clothing.
Avoid inhalation of vapor or mist.
Do not swallow.
Avoid contact with skin and eyes.
Avoid contact with eyes.
Take care to prevent spills, waste and minimize release to the environment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Conditions for safe storage : Store in a closed container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled containers.
Store in accordance with the particular national regulations.
- Materials to avoid : Strong oxidizing agents
- Packaging material : Unsuitable material: None known.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
mancozeb (ISO)	8018-01-7	TWA (Total)	1 mg/m ³	US WEEL
		C	5 mg/m ³ (Manganese)	OSHA Z-1
methenamine	100-97-0	TWA	10 mg/m ³	Dow IHG

- Engineering measures** : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.
If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

- Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines.
If there are no applicable exposure limit requirements or guidelines, use an approved respirator.
Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.
For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection : Use safety glasses (with side shields).
Skin and body protection : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Yellow

Odor : Obnoxious

Odor Threshold : No data available

pH : 6.43 (73.8 °F / 23.2 °C)
Concentration: 1 %
Method: pH Electrode

Melting point/range : Not applicable

Freezing point : No data available

Boiling point/boiling range : No data available

Flash point : > 212 °F / > 100 °C
Method: closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

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Relative vapor density : No data available

Density : 1.3274 g/cm³ (68 °F / 20 °C)
Method: Digital density meter

Solubility(ies)
Water solubility : No data available

Autoignition temperature : No data available

Viscosity
Viscosity, dynamic : No data available

Explosive properties : No

Oxidizing properties : No significant increase (>5C) in temperature.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : No decomposition if stored and applied as directed.
Stable under normal conditions.

Possibility of hazardous reactions : Stable under recommended storage conditions.
No hazards to be specially mentioned.
None known.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products : Decomposition products depend upon temperature, air supply and the presence of other materials.
Decomposition products can include and are not limited to:
Sulfur oxides
Nitrogen oxides (NO_x)
Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Remarks: For similar material(s):

Acute inhalation toxicity : Remarks: As product:
The LC50 has not been determined.

Acute toxicity estimate: 14.58 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg

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Remarks: For similar material(s):

Components:**mancozeb (ISO):**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.14 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
LD50 (Rat): > 10,000 mg/kg

Sodium lignosulfonate, sulfomethylated:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: For similar material(s):

Sodium Phosphate Monobasic Monohydrate:

Acute oral toxicity : Remarks: Low toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
May cause nausea and vomiting.
May cause abdominal discomfort or diarrhea.
LD50 (Rat): > 4,100 mg/kg

Acute dermal toxicity : Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
LD50 (Rabbit): > 5,000 mg/kg

methenamine:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation**Product:**

Species : Rabbit
Result : Mild skin irritation

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Components:**Sodium Phosphate Monobasic Monohydrate:**

Result : Mild skin irritation

methenamine:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation**Product:**

Species : Rabbit
Result : No eye irritation

Components:**Sodium lignosulfonate, sulfomethylated:**

Species : Rabbit
Result : Eye irritation

Sodium Phosphate Monobasic Monohydrate:

Result : Eye irritation

methenamine:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitization**Components:****mancozeb (ISO):**

Species : Guinea pig
Assessment : May cause sensitization by skin contact.

methenamine:

Species : Guinea pig
Assessment : The product is a skin sensitizer, sub-category 1B.

Germ cell mutagenicity**Components:****mancozeb (ISO):**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were predominantly negative.,
Animal genetic toxicity studies were negative.

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methenamine:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were inconclusive.

Carcinogenicity**Components:****mancozeb (ISO):**

Carcinogenicity - Assessment : Has caused cancer at high doses in laboratory rats.

methenamine:

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components:****mancozeb (ISO):**

Reproductive toxicity - Assessment : Suspected human reproductive toxicant
Has caused birth defects in laboratory animals only at doses toxic to the mother., Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

methenamine:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction.
Did not cause birth defects or any other fetal effects in laboratory animals.

STOT-single exposure**Product:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

Components:**Sodium Phosphate Monobasic Monohydrate:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

methenamine:

Assessment : Available data are inadequate to determine single exposure

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specific target organ toxicity.

Repeated dose toxicity**Components:****mancozeb (ISO):**

Remarks : In animals, effects have been reported on the following organs:
Thyroid.
Liver.

Sodium lignosulfonate, sulfomethylated:

Remarks : For similar material(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Sodium Phosphate Monobasic Monohydrate:

Remarks : In humans, effects have been reported on the following organs:
Kidney.

methenamine:

Remarks : Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Aspiration toxicity**Product:**

Based on physical properties, not likely to be an aspiration hazard.

Components:**mancozeb (ISO):**

Based on physical properties, not likely to be an aspiration hazard.

Sodium lignosulfonate, sulfomethylated:

Based on physical properties, not likely to be an aspiration hazard.

Sodium Phosphate Monobasic Monohydrate:

Based on physical properties, not likely to be an aspiration hazard.

methenamine:

Based on available information, aspiration hazard could not be determined.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity**Product:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.1 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203 or Equivalent
 Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 23 mg/l
 Exposure time: 48 h
 Remarks: For similar material(s):

LC50 (saltwater mysid Mysidopsis bahia): 0.0257 mg/l
 Exposure time: 96 h
 Remarks: For similar material(s):

EC50 (eastern oyster (Crassostrea virginica)): 5.88 mg/l
 Exposure time: 96 h
 Remarks: For similar material(s):

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Components:**mancozeb (ISO):**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.088 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.073 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : EyC50 (Scenedesmus capricornutum (fresh water algae)): 0.044 mg/l
 Exposure time: 120 h

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 299 mg/kg
 Exposure time: 14 d

Toxicity to terrestrial organisms : oral LD50 (Colinus virginianus (Bobwhite quail)): > 3200 mg/kg bodyweight.

oral LD50 (Apis mellifera (bees)): > 100 µg/bee
 Exposure time: 48 h
 End point: mortality

contact LD50 (Apis mellifera (bees)): > 100 µg/bee
 Exposure time: 48 h
 End point: mortality

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Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Sodium Phosphate Monobasic Monohydrate:

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (Leuciscus idus (Golden orfe)): > 2,400 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 1,000 mg/l
 Exposure time: 48 h
 Remarks: Estimated.

methenamine:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 49,800 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 36,000 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 3,000 mg/l
 Exposure time: 14 d

 NOEC (Selenastrum capricornutum (green algae)): 1,500 mg/l
 Exposure time: 14 d

Toxicity to microorganisms : NOEC: > 100 mg/l
 Exposure time: 2 h

Persistence and degradability**Components:****mancozeb (ISO):**

Biodegradability : Result: Not biodegradable.
 Remarks: Degradation is expected in the soil environment within days to weeks.
 Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Stability in water : Test Type: Hydrolysis
 Degradation half life (half-life): 17 h (25 °C) pH: 7

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Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Concentration: 1,500,000 1/cm³
Rate constant: 2.1237E-10 cm³/s
Method: Estimated.

Sodium lignosulfonate, sulfomethylated:

Biodegradability : Result: Not readily biodegradable.

Sodium Phosphate Monobasic Monohydrate:

Biodegradability : Remarks: Biodegradation is not applicable.

methenamine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 54 - 97 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
Remarks: 10-day Window: Not applicable
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

ThOD : 3.2 kg/kg

Bioaccumulative potential**Components:****mancozeb (ISO):**

Bioaccumulation : Bioconcentration factor (BCF): 2.1 - 3.1
Method: Estimated.

Partition coefficient: n-octanol/water : log Pow: 1.33
Method: Estimated.
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Sodium lignosulfonate, sulfomethylated:

Partition coefficient: n-octanol/water :
Remarks: For similar material(s):
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Sodium Phosphate Monobasic Monohydrate:

Partition coefficient: n-octanol/water : Remarks: Partitioning from water to n-octanol is not applicable.

methenamine:

Partition coefficient: n-octanol/water : log Pow: -4.15
Method: Estimated.
Remarks: Bioconcentration potential is low (BCF < 100 or Log

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Pow < 3).

Balance:

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

Mobility in soil**Components:****mancozeb (ISO):**

Distribution among environmental compartments : Koc: 1000
Method: Estimated.
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Sodium lignosulfonate, sulfomethylated:

Distribution among environmental compartments : Remarks: Expected to be relatively immobile in soil (Koc > 5000).

Sodium Phosphate Monobasic Monohydrate:

Distribution among environmental compartments : Remarks: No relevant data found.

methenamine:

Distribution among environmental compartments : Koc: < 1
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Balance:

Distribution among environmental compartments : Remarks: No relevant data found.

Other adverse effects**Components:****mancozeb (ISO):**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Sodium lignosulfonate, sulfomethylated:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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Sodium Phosphate Monobasic Monohydrate:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

methenamine:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Balance:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Mancozeb)
Class	:	9
Packing group	:	III
Labels	:	9

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IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Mancozeb)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo : 964
aircraft)
Packing instruction (passen- : 964
ger aircraft)

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(Mancozeb)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes
Remarks : Stowage category A

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**49 CFR**

UN/ID/NA number : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Mancozeb)
Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes(Mancozeb)

Further information

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : Respiratory or skin sensitization
Reproductive toxicity

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

mancozeb (ISO) 8018-01-7 >= 30 - < 50 %

US State Regulations**Pennsylvania Right To Know**

mancozeb (ISO) 8018-01-7

California Prop. 65

WARNING: This product can expose you to chemicals including mancozeb (ISO), sulphuric acid, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-396

SECTION 16. OTHER INFORMATION**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

Full text of other abbreviations

Dow IHG	:	Dow Industrial Hygiene Guideline
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
Dow IHG / TWA	:	Time weighted average
OSHA Z-1 / C	:	Ceiling
US WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of

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the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 02/03/2022

Product code: GF-1206

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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