

ASHLAND

SAFETY DATA SHEET

Page: 1

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE
™ Trademark, Solenis or its subsidiaries or
affiliates, registered in various countries735913

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

| | | |
|--------------------|--|--------------------------------|
| Ashland | Regulatory Information Number | 1-800-325-3751 |
| P.O. Box 2219 | Telephone | 614-790-3333 |
| Columbus, OH 43216 | Emergency telephone number | 1-800-ASHLAND (1-800-274-5263) |
| Product name | Biosperse™ 250 MICROBIOCIDE ™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries | |
| Product code | 735913 | |

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, green, yellow

DANGER! REDUCES BLOOD'S OXYGEN-CARRYING CAPACITY. MAY CAUSE ALLERGIC SKIN REACTION. CAUSES SEVERE BURNS OF THE EYES AND SKIN.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.

Skin contact

Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage. May cause allergic skin reaction.

Ingestion

Biosperse™ 250 MICROBIOCIDE

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Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea), abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.

Inhalation

Breathing of vapor or mist is possible. Breathing this material may be harmful or fatal. Symptoms may include severe irritation and burns to the nose, throat, and respiratory tract. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, Dizziness, Lowered blood pressure, Shortness of breath, Convulsions

Target Organs

No data

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

Based on the available information, risk to the fetus from maternal exposure to this material cannot be assessed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

CAS-No. / Trade Secret No.

Concentration

Biosperse™ 250 MICROBIOCIDE
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| | | |
|--|----------------------|-----------|
| MAGNESIUM NITRATE ANHYDROUS | 10377-60-3 | >=1.5-<5% |
| Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one | 26172-55-4 2682-20-4 | >=1.5-<5% |

4. FIRST AID MEASURES

Eyes

If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

Skin

Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash clothing before reuse and discard contaminated shoes.

Ingestion

Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Notes to physician

Hazards: No information available.

Treatment: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO2), Water spray

ASHLAND

SAFETY DATA SHEET

Page: 4

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE

™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

Hazardous combustion products

acid vapors, carbon dioxide and carbon monoxide, Chlorine, chlorine oxide, hydrogen chloride, nitrogen oxides (NOx), Sulphur oxides

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area. Keep from freezing.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| | |
|---|----------------------|
| Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one | 26172-55-4 2682-20-4 |
|---|----------------------|

| | |
|---------------------------|------------------------|
| time weighted average | 0.76 mg/m ³ |
| Short term exposure limit | 0.23 mg/m ³ |
| time weighted average | 1.5 mg/m ³ |
| Short term exposure limit | 4.5 mg/m ³ |

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Mechanical ventilation systems used to ventilate corrosive storage or process areas must be designed with components that are corrosion resistant.

Eye protection

Wear chemical splash goggles and face shield when there is potential for exposure of the eyes or face to liquid, vapor or mist. Maintain eye wash station in immediate work area.

Skin and body protection

Wear appropriate chemical impervious clothing and boots whenever there is potential for skin contact with product. Launder clothing before reuse. Maintain safety shower at all locations where skin contact could occur. Contact your local safety equipment supplier to assist the facility in determining proper selection of personal protective equipment for the applications/operations present at your facility. Wear resistant gloves (consult your safety equipment supplier). Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential

ASHLAND

SAFETY DATA SHEET

Page: 6

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDICIDE
™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-----------------------------|--|
| Physical state | liquid |
| Colour | green yellow |
| Odour | slightaromatic |
| Boiling point/boiling range | (ca.)219 °F / 104 °C |
| Melting point/range | Melting point/range (ca.)28 °F / -2 °C |
| pH | (ca.) 3.5 |
| Flash point | not applicable |
| Evaporation rate | (>)1 Ethyl Ether |
| Vapour pressure | (ca.)23.000 hPa @ 68 °F / 20 °C similar to water |
| Relative vapor density | (>)1 AIR=1 |
| Density | 1.021 - 1.042 g/cm3 @ 77 °F / 25 °C |
| Water solubility | completely soluble |
| Viscosity, dynamic | (ca.)8 mPa.s @ 21 °C |

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

Dimethylformamide, Metals, Organic materials, Strong oxidizing agents

Hazardous decomposition products

acid vapors, carbon dioxide and carbon monoxide, Chlorine, chlorine oxide, hydrogen chloride, nitrogen oxides (NOx), Sulphur oxides

ASHLAND

SAFETY DATA SHEET

Page: 7

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE
™ Trademark, Solenis or its subsidiaries or
affiliates, registered in various countries735913

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - : no data available
Product

Acute oral toxicity - Components

Mixture of 5-chloro-2- : LD 50: 49.6 - 75 mg/kg Species: Rat
methyl-2H-isothiazol-3-
one and 2-methyl-2H-
isothiazol-3-one

Acute inhalation toxicity

Acute inhalation toxicity - : no data available
Product

Acute inhalation toxicity - Components

Mixture of 5-chloro-2- : LC 50: 0.33 mg/l Exposure time: 4 h Species: Rat
methyl-2H-isothiazol-3- Remarks: Aerosol
one and 2-methyl-2H-
isothiazol-3-one

Acute dermal toxicity

Acute dermal toxicity - : no data available
Product

Acute dermal toxicity - Components

Mixture of 5-chloro-2- : LD 50: 141 mg/kg Species: Rabbit
methyl-2H-isothiazol-3-
one and 2-methyl-2H-

ASHLAND

SAFETY DATA SHEET

Page: 8

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE

™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

isothiazol-3-one

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration) : no data available

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : Zahn-Wellens Test < 70 %

Bioaccumulation

Bioaccumulation - Product : no data available

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product : LC 50: 6.16 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: static test
LC 50: 6.59 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
Test Type: static test

Toxicity to fish - Components

Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one : LC 50: 0.19 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
LC 50: 0.28 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates

Toxicity to daphnia and : LC 50: 17.7 mg/l

ASHLAND

SAFETY DATA SHEET

Page: 9

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCID

™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

| | |
|--|---|
| other aquatic invertebrates - Product | Exposure time: 7 d Species: Water flea (Ceriodaphnia dubia) Test Type: static test NOEC: 12.5 mg/l Exposure time: 7 d Species: Water flea (Ceriodaphnia dubia) Test Type: static test |
|--|---|

Toxicity to daphnia and other aquatic invertebrates - Components

| | |
|---|--|
| Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one | : EC 50: 0.16 mg/l Exposure time: 48 h Species: Water flea (Daphnia magna) |
|---|--|

Toxicity to algae

| | |
|-----------------------------|---------------------|
| Toxicity to algae - Product | : no data available |
|-----------------------------|---------------------|

Toxicity to algae - Components

| | |
|---|--|
| Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one | : EC 50: 0.018 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) |
|---|--|

Toxicity to bacteria

| | |
|--------------------------------|---------------------|
| Toxicity to bacteria - Product | : no data available |
|--------------------------------|---------------------|

Toxicity to bacteria - Components

| | |
|---|---|
| Mixture of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one | : EC 50: 4.5 mg/l Species: activated sludge Test Type: Respiration inhibition |
|---|---|

Biochemical Oxygen Demand (BOD)

| | |
|---------------------------------|----------|
| Biochemical Oxygen Demand (BOD) | : 0 mg/g |
|---------------------------------|----------|

ASHLAND

SAFETY DATA SHEET

Page: 10

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE
 ™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

Biochemical Oxygen Demand (BOD)

0 mg/g

Chemical Oxygen Demand (COD)

Chemical Oxygen Demand : 17 mg/g
 (COD)

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Deposit in a landfill in accordance with local, state and federal regulations. Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

| ID NUMBER | PROPER SHIPPING NAME | *HAZARD CLASS | SUBSIDIARY HAZARDS | PACKING GROUP | MARINE POLLUTANT /LTD. QTY. |
|-----------|----------------------|---------------|--------------------|---------------|-----------------------------|
|-----------|----------------------|---------------|--------------------|---------------|-----------------------------|

U.S. DOT - ROAD

| | | | | | |
|---------|--|---|--|----|--|
| UN 3265 | Corrosive liquid, acidic, organic, n.o.s. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | | II | |
|---------|--|---|--|----|--|

U.S. DOT - RAIL

| | | | | | |
|---------|--|---|--|----|--|
| UN 3265 | Corrosive liquid, acidic, organic, n.o.s. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | | II | |
|---------|--|---|--|----|--|

U.S. DOT - INLAND WATERWAYS

| | | | | | |
|---------|--|---|--|----|--|
| UN 3265 | Corrosive liquid, acidic, organic, n.o.s. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | | II | |
|---------|--|---|--|----|--|

TRANSPORT CANADA - ROAD

Biosperse™ 250 MICROBIOCIDE

™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

| | | | | |
|----|------|--|---|----|
| UN | 3265 | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

TRANSPORT CANADA - RAIL

| | | | | |
|----|------|--|---|----|
| UN | 3265 | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

TRANSPORT CANADA - INLAND WATERWAYS

| | | | | |
|----|------|--|---|----|
| UN | 3265 | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

INTERNATIONAL MARITIME DANGEROUS GOODS

| | | | | |
|----|------|--|---|----|
| UN | 3265 | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

| | | | | |
|----|------|--|---|----|
| UN | 3265 | Corrosive liquid, acidic, organic, n.o.s. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

| | | | | |
|----|------|--|---|----|
| UN | 3265 | Corrosive liquid, acidic, organic, n.o.s. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|--|---|----|

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

| | | | | |
|----|------|---|---|----|
| UN | 3265 | LIQUIDO CORROSIVO, ACIDO, ORGANICO, N.E.P. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE) | 8 | II |
|----|------|---|---|----|

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

ASHLAND

SAFETY DATA SHEET

Page: 12

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE

™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries735913

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SARA Hazard Classification
SARA 311/312 Classification
 Acute Health Hazard

SARA 313 Component(s)

| | |
|-----------------------------|--------|
| MAGNESIUM NITRATE ANHYDROUS | 2.24 % |
|-----------------------------|--------|

Notification status

| | |
|---|----------------------|
| US. Toxic Substances Control Act | y (positive listing) |
| Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133) | y (positive listing) |
| Australia. Industrial Chemical (Notification and Assessment) Act | y (positive listing) |
| New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand | y (positive listing) |
| Japan. Kashin-Hou Law List | y (positive listing) |
| Korea. Toxic Chemical Control Law (TCCL) List | y (positive listing) |
| Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act | y (positive listing) |
| China. Inventory of Existing Chemical Substances | y (positive listing) |

Reportable quantity - Product

ASHLAND

SAFETY DATA SHEET

Page: 13

Revision Date: 10/03/2012

Print Date: 8/26/2014

MSDS Number: R0137221

Version: 1.12

Biosperse™ 250 MICROBIOCIDE
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| | |
|--|-----------|
| US. EPA CERCLA Hazardous Substances (40 CFR 302) | 52631 lbs |
|--|-----------|

Reportable quantity-Components

| | | |
|-------------------------------|-----------|---------|
| CUPRIC (II) NITRATE ANHYDROUS | 3251-23-8 | 100 lbs |
|-------------------------------|-----------|---------|

| | HMIS | NFPA |
|------------------|------|------|
| Health | 3 | 3 |
| Flammability | 0 | 0 |
| Physical hazards | 0 | |
| Instability | | 0 |
| Specific Hazard | -- | -- |

Biocides
 74655-20

Hercules Incorporated, A wholly owned
 subsidiary of Ashland Inc.

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).