

Revision Date: 12/05/2014

Print Date: 3/19/2015

MSDS Number: R0704294

Version: 1.4

Spectrum™ XD8800 Microbiocide Agent  
™ Trademark, Solenis or its subsidiaries or affiliates, registered  
in various countries  
415948

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

Solenis LLC 500 Hercules Road Wilmington, Delaware 19808	Contact us at  Emergency telephone number	www.solenis.com  1-844-SOLENIS (844-765-3647) / 606-329-5705
Product name	Spectrum™ XD8800 Microbiocide Agent ™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries	
Product code	415948	

**2. HAZARDS IDENTIFICATION****Emergency Overview**

Appearance: solid, granules, off-white

DANGER!

**Potential Health Effects****Exposure routes**

Inhalation, 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**

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**

This material is a dust or may produce dust. 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**

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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: irritation (nose, throat, airways)

**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
2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL-	16079-88-2	<=100%

**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**

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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:** No information available.**5. FIREFIGHTING MEASURES****Suitable extinguishing media**

Water spray

**Hazardous combustion products**

Bromine, Chlorine, hydrogen bromide, hydrogen chloride

**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. Avoid breathing dust.

**Environmental precautions**

Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up**

Sweep up or vacuum up spillage and collect in suitable container for disposal. Pick up and arrange disposal without creating dust.

**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. Avoid dust formation.

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**Storage**

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

<b>8. EXPOSURE CONTROLS/PERSONAL PROTECTION</b>
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**Exposure Guidelines**

Contains no substances with occupational exposure limit values.

**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.

Avoid breathing dust.

**Exposure controls**

Mechanical ventilation systems used to ventilate corrosive storage or process areas must be designed with components that are corrosion resistant. Provide appropriate exhaust ventilation at places where dust is formed.

**Eye protection**

Wear chemical splash goggles and face shield to protect eyes and skin from airborne dust. 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 for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
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<b>Physical state</b>	solid
<b>Form</b>	granules
<b>Colour</b>	off-white

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<b>Melting point/range</b>	(ca.)293 °F / 145 °C
<b>pH</b>	(ca.) 3.5 @ 0.15 % (as aqueous solution)
<b>Flash point</b>	Not applicable
<b>Density</b>	(ca.) 0.96 g/cm <sup>3</sup>
<b>Water solubility</b>	negligible

## 10. STABILITY AND REACTIVITY

### Stability

Stable.

### Conditions to avoid

Heat, flames and sparks.

### Incompatible products

Organic materials, Reducing agents

### Hazardous decomposition products

Bromine, Chlorine, hydrogen bromide, hydrogen chloride

### Hazardous reactions

Product will not undergo hazardous polymerization.

## 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation  
 Skin contact  
 Eye Contact  
 Ingestion

### Product

Acute oral toxicity : LD 50Rat  
 578 mg/kg

Acute inhalation toxicity : LC 50 Rat: 1.88 mg/l  
 Exposure time: 4 h

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- Acute dermal toxicity : LD 50 Rabbit: Expected > 2,000 mg/kg
- Skin corrosion/irritation : No data available
- Serious eye damage/eye irritation : No data available
- Respiratory or skin sensitisation : Species: Guinea pig  
Classification: May cause sensitization by skin contact.  
Method: Buehler Test

**Components:**

**2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL-:**

- Acute oral toxicity : LD 50 Rat, male and female: 929 mg/kg
- Acute inhalation toxicity : LC 50 Rat, male and female: 0.168 mg/l  
Test atmosphere: dust/mist  
Method: OPPTS 870.1300
- Acute dermal toxicity : LD 50 Rat: > 2 g/kg  
Method: OPPTS 870.1200  
No adverse effect has been observed in acute dermal toxicity tests.  
Information given is based on data obtained from similar substances.
- Respiratory or skin sensitisation : Species: Guinea pig  
Classification: May cause sensitisation by skin contact.
- Germ cell mutagenicity
- Genotoxicity in vitro : Type: Ames test  
Test species: Salmonella typhimurium  
with and without metabolic activation  
Result: negative  
Method: OPPTS 870.5100  
Information given is based on data obtained from similar substances.
- : Type: In vitro mammalian cell gene mutation test  
Test species: mouse lymphoma cells  
with and without metabolic activation  
Result: negative

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Method: OPPTS 870.5300

Information given is based on data obtained from similar substances.

: Type: in vitro assay

Test species: Chinese hamster ovary cells

Result: negative

Method: OPPTS 870.5375

Information given is based on data obtained from similar substances.

: Type: unscheduled DNA synthesis assay

Result: negative

Method: OPPTS 870.5550

Information given is based on data obtained from similar substances.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Product:

- Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 0.87 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 0.46 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

#### Components:

### 2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL-:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.17 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC 50 (Daphnia magna (Water flea)): 0.1 mg/l  
Exposure time: 48 h
- Toxicity to fish (Chronic toxicity) : NOEC: 14 mg/l  
Species: Pimephales promelas (fathead minnow)

### Persistence and degradability

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Biochemical Oxygen Demand : 11 mg/g  
 (BOD) : 28 d

Chemical Oxygen Demand : ca. 1,005 mg/g  
 (COD)

**Components:**

**2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL-:**

Biodegradability : Readily biodegradable

**Bioaccumulative potential**

**Product:**

No data available

**Components:**

No data available

**Mobility in soil**

**Product:**

No data available

**Components:**

No data available

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods**

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**



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UN	1479	Oxidizing solid, n.o.s. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1		III
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**U.S. DOT - RAIL**

UN	1479	Oxidizing solid, n.o.s. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1		III
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**U.S. DOT - INLAND WATERWAYS**

UN	1479	Oxidizing solid, n.o.s. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1		III
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**TRANSPORT CANADA - ROAD**

UN	3085	OXIDIZING SOLID, CORROSIVE, N.O.S. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**TRANSPORT CANADA - RAIL**

UN	3085	OXIDIZING SOLID, CORROSIVE, N.O.S. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**TRANSPORT CANADA - INLAND WATERWAYS**

UN	3085	OXIDIZING SOLID, CORROSIVE, N.O.S. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**INTERNATIONAL MARITIME DANGEROUS GOODS**

UN	3085	OXIDIZING SOLID, CORROSIVE, N.O.S. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO**

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UN	3085	Oxidizing solid, corrosive, n.o.s. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER**

UN	3085	Oxidizing solid, corrosive, n.o.s. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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**MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES**

UN	3085	SOLIDO COMBURENTE, CORROSIVO, N.E.P. (BROMO CHLORO DIMETHYLHYDANTOIN)	5.1	(8)	II
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\*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

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.	
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**SARA Hazard Classification****SARA 311/312 Classification**

Acute Health Hazard

**SARA 313 Component(s)**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**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)

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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)

	HMIS	NFPA
Health	3	3
Flammability	1	1
Physical hazards	1	
Instability		1
Specific Hazard	Safety Glasses, Gloves, Apron	OX

**Biocides**

83451-3-74655

Solenis LLC

**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 the Solenis Environmental Health and Safety Department.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.



**SOLENIS™**  
**SAFETY DATA SHEET**

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ICxx : Inhibitory Concentration for xx of a substance  
Ecxx : Effective Concentration of xx  
N.O.S.: Not Otherwise Specified  
OECD : Organization for Economic Co-operation and Development  
OEL : Occupational Exposure Limit  
P-Statement : Precautionary Statement  
PBT : Persistent , Bioaccumulative and Toxic  
PPE : Personal Protective Equipment  
STEL : Short-term exposure limit  
STOT : Specific Target Organ Toxicity  
TLV : Threshold Limit Value  
TWA : Time-weighted average  
vPvB : Very Persistent and Very Bioaccumulative  
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act  
DOT : Department of Transportation  
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act  
HMIRC : Hazardous Materials Information Review Commission  
HMIS : Hazardous Materials Identification System  
NFPA : National Fire Protection Association  
NIOSH : National Institute for Occupational Safety and Health  
OSHA : Occupational Safety and Health Administration  
PMRA : Health Canada Pest Management Regulatory Agency  
RTK : Right to Know  
WHMIS : Workplace Hazardous Materials Information System