

ASHLAND®

SAFETY DATA SHEET

Page: 1

Revision Date: 08/29/2013

Print Date: 11/4/2013

MSDS Number: R0186246

Version: 2.9

Liquidewt™ COOLING WATER TREATMENT
™ Trademark, Ashland or its subsidiaries, registered
in various countries100425

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 | Liquidewt™ COOLING WATER TREATMENT | |
| | ™ Trademark, Ashland or its subsidiaries, registered in various countries | |
| Product code | 100425 | |
| Product Use Description | Cooling water treatment | |

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, Aqueous solution, light yellow

DANGER! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. REDUCES BLOOD'S OXYGEN-CARRYING CAPACITY. HARMFUL IF INHALED. CAUSES SEVERE BURNS OF THE EYES AND SKIN. HARMFUL IF SWALLOWED.

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. The feeling of irritation or pain may be delayed.

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

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

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Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, Upper respiratory tract, lung (for example, asthma-like conditions), male reproductive system, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias.

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), Nose bleeding, Cough, Difficulty in breathing, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), Lowered blood pressure, Shortness of breath, hair loss, shock, lung edema (fluid buildup in the lung tissue), lung damage, damage to the mouth, throat, and/or airways, May cause methemoglobinemia, a blood abnormality that may cause headache, difficulty breathing, lightheadedness, weakness, confusion, rapid heart rate and cyanosis (lack of oxygen in the tissues causing blue-colored skin and nails). Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects), stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Nose bleeding, Cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), Lowered blood pressure, hair loss, Shortness of breath, lung edema (fluid buildup in the lung tissue), lung damage, damage to the mouth, throat, and/or airways, shock, May cause methemoglobinemia, a blood abnormality that may cause headache, difficulty breathing, lightheadedness, weakness, confusion, rapid heart rate and cyanosis (lack of oxygen in the tissues causing blue-colored skin and nails)., corrosive effects, Difficulty in breathing

Target Organs

Frequent ingestion of silicates over long periods of time is associated with the formation of stones in the kidney and urinary tract in humans., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: effects on male fertility, testis damage

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

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Components | CAS-No. / Trade Secret No. | Concentration |
|-----------------------------|----------------------------|---------------|
| SODIUM BORATE DECAHYDRATE | 1303-96-4 | >=15-<20% |
| SODIUM NITRITE | 7632-00-0 | >=5-<10% |
| SODIUM METASILICATE | 6834-92-0 | >=1.5-<5% |
| SODIUM HYDROXIDE | 1310-73-2 | >=1.5-<5% |
| SODIUM MERCAPTOBENZOTHAZOLE | 2492-26-4 | >=1-<1.5% |

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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. Do not remove the victim from water access for transport to a medical facility unless instructed to do so by qualified medical personnel. If possible, continue flushing the eye gently with water while transporting the victim.

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: Overexposure to this product (or a component) may cause methemoglobinemia, which in sufficient concentration causes cyanosis. Severe cyanosis may require intravenous injection of methylene blue. Methylene blue is contraindicated if the patient has confirmed or suspected glucose-6-phosphate dehydrogenase deficiency.

Treatment: No hazards which require special first aid measures.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

carbon dioxide and carbon monoxide, corrosive vapors, Hydrogen, nitrogen compounds, nitrogen oxides (NO_x), Sodium oxides, sulfur oxides, toxic fumes

Precautions for fire-fighting

No special fire hazards are known to be associated with this product. 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.

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NFPA Flammable and Combustible Liquids Classification
not applicable

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

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

When diluting liquid caustic solutions, slowly add the caustic solution to lukewarm water (80-100 degrees F, 27-38 degrees C) in order to prevent heat buildup that could result in injury due to boiling or spattering of the solution. Never start with cold or hot water. Never add water to caustic. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| SODIUM BORATE DECAHYDRATE | | 1303-96-4 | |
|---------------------------|---------------------------|-----------|-----------|
| CAD BC OEL | time weighted average | 2 mg/m3 | Inhalable |
| CAD BC OEL | Short term exposure limit | 6 mg/m3 | Inhalable |
| OEL (QUE) | time weighted average | 5 mg/m3 | |
| CAD AB OEL | time weighted average | 1 mg/m3 | |
| CAD AB OEL | Short term exposure limit | 3 ppm | |

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| | | | |
|-------------------------|---------------------------|------------------|---------------------|
| CAD ON OEL | time weighted average | 2 mg/m3 | Inhalable fraction. |
| CAD ON OEL | Short term exposure limit | 6 mg/m3 | Inhalable fraction. |
| CAD MB OEL | time weighted average | 2 mg/m3 | Inhalable fraction. |
| CAD MB OEL | Short term exposure limit | 6 mg/m3 | Inhalable fraction. |
| SODIUM HYDROXIDE | | 1310-73-2 | |
| CAD AB OEL | Ceiling Limit Value: | 2 mg/m3 | |
| CAD BC OEL | Ceiling Limit Value: | 2 mg/m3 | |
| CAD ON OEL | Ceiling Limit Value: | 2 mg/m3 | |
| OEL (QUE) | Ceiling Limit Value: | 2 mg/m3 | |
| CAD MB OEL | Ceiling Limit Value: | 2 mg/m3 | |

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 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 |
| Form | Aqueous solution |
| Colour | light yellow |
| Odour | odourless |

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| | |
|------------------------------------|---|
| Boiling point/boiling range | 212 °F / 100 °C @ 1,013.00 hPa Calculated Phase Transition Liquid/Gas |
| Melting point/range | 10 °F / -12 °C |
| pH | 12.8 |
| Flash point | not applicable |
| Evaporation rate | (>)1 Ethyl Ether |
| Vapour pressure | 32.000 hPa @ 77 °F / 25 °C Calculated Vapor Pressure |
| Relative vapour density | (>)1 AIR=1 |
| Density | 1.230 g/cm3 @ 77.0 °F / 25.0 °C |
| Water solubility | soluble |

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Do not allow evaporation to dryness., Heat, flames and sparks., Exposure to sunlight., Exposure to moisture.

Incompatible products

Acids, activated carbon, Alkali metals, ammonium salts, aluminum, aluminum salts, Amines, Ammonia, Combustible material, Cyanides, halogenated hydrocarbons, Lead, Metals, metal hydrides, metal salts, organic nitro compounds, oxidizable substances, Powdered metals, Reducing agents, Strong oxidizing agents, Tin, Zinc
Acids, activated carbon, Alkali metals, ammonium salts, aluminum, aluminum salts, Amines, Ammonia, Combustible material, Cyanides, halogenated hydrocarbons, Lead, Metals, metal hydrides, metal salts, organic nitro compounds, oxidizable substances, Powdered metals, Reducing agents, Strong oxidizing agents, Tin, water, Zinc

Hazardous decomposition products

May form:., carbon dioxide and carbon monoxide, corrosive vapors, Hydrogen, nitrogen compounds, nitrogen oxides (NOx), Sodium oxides, Sulphur oxides, toxic fumes, nitrogen oxides

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin absorption

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Skin contact
Eye Contact
Ingestion

Product

| | | |
|---|---|---|
| Acute oral toxicity | : | Toxic if swallowed. |
| Acute inhalation toxicity | : | no data available |
| Acute dermal toxicity | : | no data available |
| Skin corrosion/irritation | : | Result: Causes severe burns. |
| Serious eye damage/eye irritation | : | Result: Causes severe burns. |
| Respiratory or skin sensitisation | : | no data available |
| Target Organ Systemic Toxicant - Repeated Exposure | : | Target Organs: Frequent ingestion of silicates over long periods of time is associated with the formation of stones in the kidney and urinary tract in humans., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, effects on male fertility, testis damage |

Components:

SODIUM BORATE DECAHYDRATE:

| | | |
|---------------------------|---|--|
| Acute oral toxicity | : | LD 50 Rat: 4,500 - 5,000 mg/kg |
| Acute inhalation toxicity | : | LC 50 Rat: > 0.002 mg/l Exposure time: 4 h LC 50 Rat: > 2 mg/l |
| Acute dermal toxicity | : | LD 50 Rabbit: > 10,000 mg/kg |

SODIUM NITRITE:

| | | |
|---------------------------|---|----------------------|
| Acute oral toxicity | : | LD 50 Rat: 180 mg/kg |
| Acute inhalation toxicity | : | LC 50 Rat: 5.5 mg/l |

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Exposure time: 4 h

SODIUM METASILICATE:

Acute oral toxicity : LD 50 Rat: 1,153 mg/kg

SODIUM HYDROXIDE:

Acute oral toxicity : LD Lo Rabbit: 500 mg/kg

Acute dermal toxicity : LD 50 Rabbit: 1,350 mg/kg

SODIUM MERCAPTOBENZOTHAZOLE:

Acute oral toxicity : LD 50 Rat: 5,200 mg/kg

Acute inhalation toxicity : LC 50 Rat: > 6.5 mg/l
Exposure time: 4 h

Acute dermal toxicity : LD 50 Rabbit: > 5,010 mg/kg

Germ cell mutagenicity

Genotoxicity in vitro : Type: Ames test
Result: negative

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Toxicity to daphnia and other aquatic invertebrates : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components:

SODIUM BORATE DECAHYDRATE:

Toxicity to fish : LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss)):
1,800 mg/l
Exposure time: 48 h
Test Method: static test

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SODIUM NITRITE:

- Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 0.54 - 26.3 mg/l
Exposure time: 96 h
Test Method: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 15.4 mg/l
Exposure time: 48 h
Test Method: static test
Method: OECD Test Guideline 202
- Toxicity to algae : EC 50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Test Method: Growth inhibition
Method: OECD Test Guideline 201
- Toxicity to bacteria : EC10 (activated sludge): 210 mg/l
Exposure time: 3 h
Test Method: Static
Method: OECD Test Guideline 209
- Toxicity to fish (Chronic toxicity) : NOEC: 6.16 mg/l
Exposure time: 31 d
Species: Ictalurus catus (catfish)
Test Method: flow-through test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 9.86 mg/l
Exposure time: 80 d
Species: Aquatic invertebrates
Test Method: static test

SODIUM HYDROXIDE:

- Toxicity to fish : LC 50 (Western mosquitofish (Gambusia affinis)): 125 mg/l
Exposure time: 96 h
Method: Static
Mortality
- Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 34.59 - 47.13 mg/l
Exposure time: 48 h
Intoxication

SODIUM MERCAPTOBENZOTHAZOLE:

- Toxicity to fish : LC 50 (Bluegill (Lepomis macrochirus)): 3.8 mg/l
Exposure time: 96 h

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LC 50 (Pimephales promelas (fathead minnow)): 4.2 mg/l
Exposure time: 96 h
Test Method: static test
Method: OECD Test Guideline 203

LC 50 (Oncorhynchus mykiss (rainbow trout)): 0.75 mg/l
Exposure time: 96 h
Test Method: static test

LC 50 (Bluegill (Lepomis macrochirus)): 1.5 mg/l
Exposure time: 96 h
Test Method: static test

Toxicity to daphnia and other : EC 50 (Water flea (Daphnia magna)): 19 mg/l
aquatic invertebrates Exposure time: 48 h
Method: OECD Test Guideline 202

EC 50 (Water flea (Daphnia magna)): 2.9 mg/l
Exposure time: 48 h

Toxicity to algae : IC50 (Pseudokirchneriella subcapitata (green algae)): 0.3 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

EC50 (Green algae (Selenastrum capricornutum)): 0.4 mg/l
Exposure time: 96 h

Persistence and degradability

Product:

no data available

Components:

no data available

Bioaccumulative potential

Product:

no data available

Components:

SODIUM NITRITE:

Partition coefficient: n- : log Pow: -3.700 (25 °C)
octanol/water

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SODIUM MERCAPTOBENZOTHAZOLE:

Partition coefficient: n- : log Pow: 2.4
octanol/water

Mobility in soil

Product:

no data available

Components:

SODIUM NITRITE:

Stability in soil : Not expected to adsorb on soil.

SODIUM HYDROXIDE:

Surface tension : 101.05 mN/m

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

| | | | | | |
|---------|--|---|-------|----|--|
| UN 2922 | Corrosive liquids, toxic, n.o.s. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II | |
|---------|--|---|-------|----|--|

U.S. DOT - RAIL

| | | | | | |
|---------|--|---|-------|----|--|
| UN 2922 | Corrosive liquids, toxic, n.o.s. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II | |
|---------|--|---|-------|----|--|

U.S. DOT - INLAND WATERWAYS

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| | | | | | |
|----|------|---|---|-------|----|
| UN | 2922 | Corrosive liquids, toxic, n.o.s. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|---|---|-------|----|

TRANSPORT CANADA - ROAD

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

TRANSPORT CANADA - RAIL

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

TRANSPORT CANADA - INLAND WATERWAYS

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

INTERNATIONAL MARITIME DANGEROUS GOODS

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | Corrosive liquid, toxic, n.o.s. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | Corrosive liquid, toxic, n.o.s. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

| | | | | | |
|----|------|--|---|-------|----|
| UN | 2922 | LIQUIDO CORROSIVO, TOXICO, N.E.P. (SODIUM HYDROXIDE, SODIUM NITRITE) | 8 | (6.1) | II |
|----|------|--|---|-------|----|

*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

WHMIS Classification

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D1B Toxic Material Causing Immediate and Serious Toxic Effects
E Corrosive Material



This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Canadian National Pollutant Release Inventory (NPRI)

SODIUM NITRITE

7.00 %

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) |
| Japan. ENCS - Existing and New Chemical Substances Inventory | 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 | 0 | 0 |
| Physical hazards | 1 | |
| Instability | | 1 |
| Specific Hazard | -- | -- |

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).

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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.

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