

ASHLAND®

SAFETY DATA SHEET

Page: 1

Revision Date: 08/15/2013

Print Date: 8/12/2014

MSDS Number: R0185096

Version: 1.8

Maxigard™ DIESEL ENGINE COOLING

™ Trademark, Solenis or its subsidiaries or affiliates,
registered in various countries50633

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	Maxigard™ DIESEL ENGINE COOLING	
	™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries	
Product code	50633	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid,

DANGER! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. REDUCES BLOOD'S OXYGEN-CARRYING CAPACITY. REDUCES BLOOD'S OXYGEN-CARRYING CAPACITY. HARMFUL IF SWALLOWED. HARMFUL IF INHALED. 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. Skin absorption of this material (or a component) may be increased through injured skin.

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.).

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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), 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: 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, effects on heart rate, hair loss, Shortness of breath, Lack of coordination, cyanosis (causes blue coloring of the skin and nails from lack of oxygen), shock, Convulsions, 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), 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: thyroid effects, 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.

Other information

This product contains nitrite or nitrate which may react with secondary and tertiary amines to form nitrosamines. Certain nitrosamines have been shown to cause cancer in laboratory animals.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
SODIUM METABORATE, anhydrous	7775-19-1	>=10-<15%
SODIUM NITRATE	7631-99-4	>=5-<10%
INORGANIC SALT	254504001-5754	>=5-<10%
SODIUM NITRITE	7632-00-0	>=1.5-<5%
INORGANIC SALT	254504001-5179	>=1.5-<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.

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

boron oxides, carbon dioxide and carbon monoxide, Hydrogen, nitrogen compounds, nitrogen oxides (NO_x), Sulphur oxides, toxic fumes

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.

NFPA Flammable and Combustible Liquids Classification

not applicable

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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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

SODIUM METABORATE, anhydrous		7775-19-1	
ACGIH	time weighted average	2 mg/m3	Inhalable fraction.
ACGIH	Short term exposure limit	6 mg/m3	Inhalable fraction.
INORGANIC SALT		254504001-5754	
NIOSH	Recommended exposure limit (REL):	5 mg/m3	
ACGIH	time weighted average	2 mg/m3	Inhalable fraction.
ACGIH	Short Term Exposure Limit (STEL):	6 mg/m3	Inhalable fraction.

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

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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
Boiling point/boiling range	212 °F / 100 °C
Melting point/range	-10 °F / -23 °C
pH	12
Flash point	not applicable
Evaporation rate	(>)1 Ethyl Ether
Vapour pressure	17.500 mmHg @ 77 °F / 25 °C
Density	1.274 g/cm3
	10.63 lb/gal @ 77 °F / 25 °C
Water solubility	completely soluble

10. STABILITY AND REACTIVITY

Stability

Stable.

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Conditions to avoid

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

Incompatible products

Acids, activated carbon, Alkali metals, ammonium salts, aluminum, aluminum salts, Amines, Ammonia, Combustible material, Cyanides, Lead, metal hydrides, metal salts, Organic materials, oxidizable substances, Powdered metals, Reducing agents, Strong oxidizing agents, Tin, water, Zinc

Hazardous decomposition products

boron oxides, carbon dioxide and carbon monoxide, Hydrogen, nitrogen compounds, nitrogen oxides (NOx), Sulphur oxides

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

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

Product

Acute oral toxicity : no data available

Acute inhalation toxicity : no data available

Acute dermal toxicity : no data available

Skin corrosion/irritation : no data available

Serious eye damage/eye irritation : no data available

Respiratory or skin sensitisation : no data available

Target Organ Systemic Toxicant : Target Organs: Frequent ingestion of silicates over long periods
- Repeated Exposure 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

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effects in laboratory animals:, thyroid effects, effects on male
fertility, testis damage

Components:

SODIUM METABORATE, anhydrous:

Acute oral toxicity : LD 50 Rat, Male: 2,330 mg/kg

Acute inhalation toxicity : LC 50 Rat: > 2.04 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD 50 Rabbit: > 2,000 mg/kg
GLP: yes

Reproductive toxicity - : Suspected of damaging the unborn child.
Assessment

SODIUM NITRATE:

Acute oral toxicity : LD 50 Rat: ca. 3,430 mg/kg
Method: OECD Test Guideline 401

INORGANIC SALT:

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
Exposure time: 4 h

INORGANIC SALT:

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

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12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

no data available

Components:

SODIUM NITRATE:

- Toxicity to fish : LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss)):
1,355 - 2,063 mg/l
Exposure time: 96 h
Method: Static
Mortality
- Toxicity to daphnia and other aquatic invertebrates : LC 50 (Water flea (Daphnia magna)): 3,581 mg/l
Exposure time: 48 h
Method: Static
Mortality

INORGANIC SALT:

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

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

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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

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

Mobility in soil**Product:**

no data available

Components:**SODIUM NITRITE:**

Stability in soil : Not expected to adsorb on soil.

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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.
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U.S. DOT - ROAD

UN 3266	Corrosive liquid, basic, inorganic, n.o.s. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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U.S. DOT - RAIL

UN 3266	Corrosive liquid, basic, inorganic, n.o.s. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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U.S. DOT - INLAND WATERWAYS

UN 3266	Corrosive liquid, basic, inorganic, n.o.s. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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TRANSPORT CANADA - ROAD

UN 3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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TRANSPORT CANADA - RAIL

UN 3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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TRANSPORT CANADA - INLAND WATERWAYS

UN 3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8		III	
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INTERNATIONAL MARITIME DANGEROUS GOODS

UN	3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8	III
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	3266	Corrosive liquid, basic, inorganic, n.o.s. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8	III
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	3266	Corrosive liquid, basic, inorganic, n.o.s. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8	III
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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	3266	LIQUIDO CORROSIVO, BASICO, INORGANICO, N.E.P. (SODIUM HYDROXIDE, SODIUM METASILICATE)	8	III
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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

SARA Hazard Classification
SARA 311/312 Classification
Acute Health Hazard

SARA 313 Component(s)

SODIUM NITRATE	6.00 %
SODIUM NITRITE	4.50 %

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)

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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

US. EPA CERCLA Hazardous Substances (40 CFR 302)	2222 lbs
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Reportable quantity-Components

SODIUM NITRITE	7632-00-0	100 lbs
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	HMIS	NFPA
Health	3*	3
Flammability	0	0
Physical hazards	2	
Instability		2
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).

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

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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