

# Dynalene MS-1 (heat transfer salt)

## 1. Product and Company Identification

### 1.1 Product identifiers

Product Name: Dynalene MS-1  
Producer: Dynalene, Inc.  
Product Number: Not available.  
CAS-No.: Not available.

### 1.2 Identified uses of the product and uses advised against

Identified Uses: Heat transfer fluid/salt.

### 1.3 Details of the chemical supplier

Company: Dynalene, Inc.  
5250 West Coplay Road  
Whitehall, PA 18052  
USA  
Telephone: +1 610-262-9686  
Fax: +1 610-262-7437

### 1.4 Emergency telephone number

Within the U.S.: +1 800-424-9300 (CHEMTREC)  
Outside the U.S.: +1 703-527-3887 (CHEMTREC)

## 2. Hazards Identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing solids (Category 3), H272  
Acute toxicity, Oral (Category 4), H302  
Skin irritation (Category 2), H315  
Eye irritation (Category 2B), H320  
Specific target organ toxicity – single exposure (Category 3), Respiratory system, H335  
Acute aquatic toxicity (Category 3), H402  
Chronic aquatic toxicity (Category 3), H412

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H320	Causes eye irritation.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat.
P220	Keep/Store away from clothing/combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash skin thoroughly after handling.

P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P370+P378	In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam for extinction.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS**  
None.

### 3. Composition/Information on Ingredients

**3.1 Product mixture**

Synonyms:	Mixture.
Molecular Wt:	Not available.
CAS-No.:	Not available.

Ingredients	Classification	CAS-No.	Concentration
Potassium nitrate	Ox. Sol. 3; Aquatic Acute 3; Aquatic Chronic 3; H272, H412	7757-79-1	20-80%
Sodium nitrate	Ox. Sol. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2B; STOT SE 3; H272, H302, H315, H320, H335	7631-99-4	20-80%

### 4. First Aid Measures

**4.1 Description of first aid measures**

**Skin exposure**

If this product contaminates the skin, wash off with soap and plenty of water. Consult a physician.

**Eye exposure**

If this product enters the eyes, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Inhalation**

If dusts or mists of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Consult a physician.

**Ingestion**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and in section 11.

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available.

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## 5. Fire Fighting Measures

### 5.1 Suitable (and unsuitable) extinguishing media

Suitable: Water spray, carbon dioxide, foam, dry chemical, any ABC class.

### 5.2 Specific hazards arising from the chemical

Sodium/potassium oxides, nitrogen oxides (NO<sub>x</sub>). The nature of the decomposition products is unknown.

### 5.3 Advice for firefighters

Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed containers if it can be done without risk to firefighters. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmental areas. Decontaminate fire-response equipment with soap and water solution if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## 6. Accidental Release Measures

### 6.1 Personal precautions, protective equipment, and emergency procedures

Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of an uncontrolled release, clear the affected area, protect people, and respond with trained personnel. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

### 6.4 References to other sections

For disposal see section 13.

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## 7. Handling and Storage

### 7.1 General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the day.

### 7.2 Precautions for safe handling

All employees who handle this material should be trained to handle it safely. Use in a well-ventilated location. Open drums and other containers of this product slowly, on a stable surface. Drums and other containers of this product should be properly labeled. Empty drums and containers may contain residual amounts of this product, therefore, empty containers should be handled with care. Keep away from heat and sources of ignition – no smoking. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

### 7.3 Conditions for safe storage, including any incompatibilities

Move drums of this product carefully, with the appropriate drum-handling equipment. Store drums and other containers in cool, dry locations, away from direct sunlight, or sources of intense heat. Storage areas should be made of fire-resistant materials. Keep containers away from incompatible chemicals. Keep containers tightly closed and in dry, well-ventilated places.

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## 8. Exposure Controls/Personal Protection

### 8.1 Control and exposure limits recommended by the chemical manufacturer

OSHA Permissible Exposure Limit (PEL):	None established.
OSHA Short Term Exposure Limit (STEL):	None established.
ACGIH Threshold Limit Value (TLV):	None established.
ACGIH Short Term Exposure Limit (STEL):	None established.

### 8.2 Appropriate engineering controls

Use with adequate ventilation to minimize exposure to mists or sprays of this product. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used. Monitoring of oxygen level is recommended. Decontaminate the area thoroughly. If necessary, decontaminate spill response equipment with soap and water solution

### 8.3 Individual protection measures, such as personal protective equipment

#### Respiratory protection

None needed for normal circumstances of use. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

#### Eye protection

Wear safety glasses with side shields.

#### Hand protection

Wear butyl rubber, natural rubber, neoprene, Nitrile rubber, or other suitable gloves for routine industrial use.

#### Body protection

Complete suit protecting against chemicals.

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## 9. Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	White, crystalline.
b) Odor	Odorless.
c) Odor threshold	Not available.
d) pH	Not available.
e) Melting/freezing point	222°C (432°F)
f) Boiling point	>590°C (>1094°F).
g) Flash point	Not available.
h) Evaporation rate	Not available.
i) Flammability (solid, gas)	Not available.
j) Upper/lower flammability or explosive limits	Upper (UEL): Not available. Lower (LEL): Not available.
k) Vapor pressure	<1.0 mmHg at 25°C (77°F)
l) Vapor density	Not available.
m) Relative density	2.2 g/cm <sup>3</sup> at 25°C (77°F)
n) Water solubility	Soluble.
o) Partition coefficient: n-octanol/water	Not available.
p) Auto-ignition temp	Not available.
q) Decomposition temp	>600°C (>1112°F)
r) Viscosity	4.0 cP at 300°C (572°F)

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## 10. Stability and Reactivity

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

Stable under ordinary conditions of use and storage.

### 10.3 Possibility of hazardous reactions

No data available.

### 10.4 Conditions to avoid

Contact with incompatible chemicals and exposure to extremely high temperatures. Avoid electrical sparks and other sources of ignition.

### 10.5 Incompatible materials

Strong oxidizers, strong acids, acid chlorides, acid anhydrides, chloroformates, organic materials, cyanides, thiocyanates, or strong reducing agents.

### 10.6 Hazardous decomposition products

No data available. In the event of fire, see section 5.

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## 11. Toxicological Information

### 11.1 Information on toxicological effects

#### Acute toxicity

Potassium nitrate

LD50 Oral – rat: 3,750 mg/kg

Sodium nitrate

LD50 Oral – rat: 1,267 mg/kg

LD50 Oral – rabbit: 2,680 mg/kg

LD50 Intravenous – mouse: 175 mg/kg

#### Skin corrosion/ irritation

No data available.

#### Serious eye damage/eye irritation

No data available.

#### Suspected cancer agent

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH, NTP, or OSHA.

IARC: 2A – Group 2A: Probably carcinogenic to humans (potassium nitrate).

#### Irritancy of product

This product may cause irritation to contaminated tissues.

#### Reproductive toxicity

This product is not reported to produce mutagenic, embryotoxic, teratogenic, or reproductive effects in humans.

#### Medical conditions aggravated by exposure

It is anticipated that mainly skin, eye, and respiratory disorders may be aggravated after over-exposure.

#### Recommendations to physicians

Treat symptoms and eliminate over-exposure.

#### Biological exposure indices

Currently, there are no Biological Indices (BEIs) associated with the components of this product.

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## 12. Ecological Information

### 12.1 Ecotoxicity (aquatic and terrestrial)

This product may be harmful to aquatic life if large quantities are released into bodies of water.

Potassium nitrate

Toxicity to fish: LC50 – Gambusia affinis (Mosquito fish) – 22.5 mg/L, 96 hrs.  
Static test LC50 – Poecilia reticulata (guppy) – 1,378 mg/L, 96 hrs.

Toxicity to invertebrates: EC50 – Daphnia magna (Water flea) – 226 mg/L, 72 hrs.

Sodium nitrate

Toxicity to fish: LC50 – Gambusia affinis (Mosquito fish) – 6,650 mg/L, 96 hrs.

Toxicity to invertebrates: EC50 – Daphnia magna (Water flea) – 6,000 mg/L, 24 hrs.

### 12.2 Persistence and degradability

No data available.

### 12.3 Mobility in soil

No data available.

### 12.4 Other adverse effects

None.

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## 13. Disposal Considerations

### 13.1 Waste treatment methods

Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

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## 14. Transport Information

UN Number: 1499  
Class: 5.1  
UN Proper Shipping Name: Sodium nitrate and potassium nitrate mixtures  
Packing Group: III

### Marine pollutant

No component of this product is listed as a Marine Pollutant (49 CFR 172.101, Appendix B).

### Transport Canada transportation of dangerous goods regulations

This material is not considered as dangerous goods.

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## 15. Regulatory Information

### SARA Reporting Requirements

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: Potassium nitrate, CAS-No.: 7757-79-1; Revision date: 2007-03-01.

SARA 311/312 Hazards: Reactivity hazard, chronic health hazard.

### TSCA Inventory Status

The components of this product listed in Section 3 are on the TSCA Inventory.

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## 16. Other Information

**Revision Date**August 12<sup>th</sup>, 2014

This SDS was prepared by Dynalene, Inc.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Dynalene Heat Transfer Fluids assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Dynalene Heat Transfer Fluids assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.