1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Dimethylglyoxime</th>
</tr>
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<tbody>
<tr>
<td>Product Number</td>
<td>162574</td>
</tr>
<tr>
<td>Brand</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td>Supplier</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td></td>
<td>3050 Spruce Street</td>
</tr>
<tr>
<td></td>
<td>SAINT LOUIS MO 63103 USA</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
<tr>
<td>Emergency Phone #</td>
<td>(314) 776-6555</td>
</tr>
<tr>
<td>Preparation Information</td>
<td>Sigma-Aldrich Corporation</td>
</tr>
<tr>
<td></td>
<td>1-800-521-8956</td>
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</tbody>
</table>

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable solid, Toxic by ingestion

GHS Classification
Flammable solids (Category 2)
Acute toxicity, Oral (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H228 Flammable solid.
H301 Toxic if swallowed.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

HMIS Classification
Health hazard: 2
Flammability: 0
Physical hazards: 2

NFPA Rating
Health hazard: 2
Fire: 0
Reactivity Hazard: 2

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes  May cause eye irritation.
Ingestion  Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  2,3-Butanedione dioxime    Diacetyldioxime

Formula  C₄H₈N₂O₂
Molecular Weight  116.12 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>Butanedione dioxime</td>
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<tr>
<td>CAS-No.</td>
<td>95-45-4</td>
</tr>
<tr>
<td>EC-No.</td>
<td>202-420-1</td>
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</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE
**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Conditions for safe storage**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**
- Form: solid
- Colour: colourless

**Safety data**
- pH: no data available
- Melting point/freezing point: Melting point/range: 240 - 241 ºC (464 - 466 ºF)
- Boiling point: no data available
- Flash point: no data available
- Flammability (solid, gas): The substance or mixture is a flammable solid with the category 2.
- Ignition temperature: no data available
- Autoignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: no data available
- Density: no data available
Water solubility: insoluble
Partition coefficient: n-octanol/water: no data available
Relative vapour density: no data available
Odour: odourless
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LDLO Oral - rat - 250 mg/kg

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Genotoxicity in vitro - Hamster - Embryo
Morphological transformation.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

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Synergistic effects

no data available

Additional Information

RTECS: EK2975000

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2926  Class: 4.1 (6.1)  Packing group: III
Proper shipping name: Flammable solids, toxic, organic, n.o.s. (Butanedione dioxime)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2926  Class: 4.1 (6.1)  Packing group: III  EMS-No: F-A, S-G
Proper shipping name: FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S. (Butanedione dioxime)
Marine pollutant: No

IATA
UN number: 2926  Class: 4.1 (6.1)  Packing group: III
Proper shipping name: Flammable solid, toxic, organic, n.o.s. (Butanedione dioxime)

15. REGULATORY INFORMATION

OSHA Hazards
Flammable solid, Toxic by ingestion

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

SARA 313 Components
SARA 313: 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.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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

16. OTHER INFORMATION

Further information
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