

# Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: March 01, 2019

Revision: March 01, 2019

## 1 Identification

- **Product identifier**
- **Trade name:** Diacetyldioxime, 1%
- **Product code:** DM4320SS
- **Recommended use and restriction on use**
- **Recommended use:** Laboratory chemicals
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
AquaPhoenix Scientific, Inc.  
860 Gitts Run Road  
Hanover, PA 17331  
Phone: (717)632-1291  
Toll-Free: (866)632-1291  
info@aquaphoenixsci.com
- **Emergency telephone number:**  
ChemTel Inc.  
(800)255-3924 (North America)  
+1 (813)248-0585 (International)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
Flam. Liq. 2 H225 Highly flammable liquid and vapor.  
Eye Irrit. 2A H319 Causes serious eye irritation.
- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS02 GHS07

- **Signal word:** Danger
- **Hazard statements:**  
H225 Highly flammable liquid and vapor.  
H319 Causes serious eye irritation.
- **Precautionary statements:**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P264 Wash thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.

P403+P235 Store in a well-ventilated place. Keep cool.





P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **Other hazards** There are no other hazards not otherwise classified that have been identified.

## 3 Composition/information on ingredients

• **Chemical characterization: Mixtures**

• **Components:**

64-17-5	Ethanol	 Flam. Liq. 2, H225  Eye Irrit. 2A, H319	94.08%
95-45-4	butanedione dioxime	 Flam. Sol. 2, H228  Acute Tox. 4, H302	0.97%
7732-18-5	Water		4.95%

• **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

For the wording of the listed Hazard Statements, refer to section 16.

## 4 First-aid measures

• **Description of first aid measures**

• **General information:** Immediately remove any clothing soiled by the product.

• **After inhalation:**

Supply fresh air; consult doctor in case of complaints.

Provide oxygen treatment if affected person has difficulty breathing.

• **After skin contact:**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If skin irritation is experienced, consult a doctor.

• **After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

• **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

• **Most important symptoms and effects, both acute and delayed:**

Causes eye irritation.

Breathing difficulty

Coughing

Causes mild skin irritation.

Gastric or intestinal disorders when ingested.

Nausea in case of ingestion.

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Dizziness  
Acidosis  
Disorientation  
Unconsciousness

• **Danger:**

May cause neurotoxic effects.  
Danger of impaired breathing.

• **Indication of any immediate medical attention and special treatment needed:**

If medical advice is needed, have product container or label at hand.

## 5 Fire-fighting measures

• **Extinguishing media**

• **Suitable extinguishing agents:**

Alcohol resistant foam  
Water fog / haze  
Carbon dioxide  
Gaseous extinguishing agents  
Fire-extinguishing powder

• **For safety reasons unsuitable extinguishing agents:** Water stream.

• **Special hazards arising from the substance or mixture**

Highly flammable liquid and vapor.  
Formation of toxic gases is possible during heating or in case of fire.

• **Advice for firefighters**

• **Protective equipment:**

Wear self-contained respiratory protective device.  
Wear fully protective suit.

• **Additional information:**

Eliminate all ignition sources if safe to do so.  
Use large quantities of foam as it is partially destroyed by the product.  
Cool endangered receptacles with water in flooding quantities.

## 6 Accidental release measures

• **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.  
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.  
Ensure adequate ventilation.  
Keep away from ignition sources.  
Protect from heat.

• **Environmental precautions**

Do not allow to enter sewers/ surface or ground water.  
Inform respective authorities in case of seepage into water course or sewage system.

• **Methods and material for containment and cleaning up**

Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).  
Send for recovery or disposal in suitable receptacles.

• **Reference to other sections**

See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
  - Prevent formation of aerosols.
  - Avoid splashes or spray in enclosed areas.
  - Use only in well ventilated areas.
- **Information about protection against explosions and fires:**
  - Highly flammable liquid and vapor.
  - Keep ignition sources away - Do not smoke.
  - Protect against electrostatic charges.
  - Flammable gas-air mixtures may be formed in empty containers/receptacles.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
  - Store in a cool location.
  - Due to photo-sensitivity, store product in brown-glass or stainless steel receptacles.
- **Information about storage in one common storage facility:**
  - Store away from foodstuffs.
  - Store away from oxidizing agents.
- **Further information about storage conditions:** Keep containers tightly sealed.
- **Specific end use(s)** No relevant information available.

## 8 Exposure controls/personal protection

### · Control parameters

#### · Components with limit values that require monitoring at the workplace:

##### 64-17-5 Ethanol

PEL (USA)	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL (USA)	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV (USA)	Short-term value: 1880 mg/m <sup>3</sup> , 1000 ppm
EL (Canada)	Short-term value: 1000 ppm
EV (Canada)	Long-term value: 1,900 mg/m <sup>3</sup> , 1,000 ppm
LMPE (Mexico)	Long-term value: 1000 ppm
	A3

- **Exposure controls**
- **General protective and hygienic measures:**
  - The usual precautionary measures for handling chemicals should be followed.
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing.
  - Wash hands before breaks and at the end of work.
  - Do not inhale dust / smoke / mist.
- **Engineering controls:** Provide adequate ventilation.

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• **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

• **Material of gloves**

Laminated film gloves.

Nitrile rubber, NBR

Neoprene gloves

Butyl rubber, BR

• **Not suitable are gloves made of the following materials:**

PVC gloves

PVA gloves

• **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

• **Body protection:** Solvent resistant protective clothing

• **Limitation and supervision of exposure into the environment**

No relevant information available.

## 9 Physical and chemical properties

• **Information on basic physical and chemical properties**

• **Appearance:**

Form: Liquid

Color: Colorless

• **Odor:** Like alcohol

• **Odor threshold:** Not determined.

• **pH-value:** Not determined.

• **Melting point/Melting range:** Not determined.

• **Boiling point/Boiling range:** 78 °C (172.4 °F)

• **Flash point:** 13 °C (55.4 °F)

• **Flammability (solid, gaseous):** Not applicable.

• **Auto-ignition temperature:** 425 °C (797 °F)

• **Decomposition temperature:** Not determined.

• **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

• **Explosion limits**

Lower: 3.5 Vol %

Upper: 15 Vol %

• **Oxidizing properties:** Not determined.

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|---|--------------------------------------|
| · <b>Vapor pressure at 20 °C (68 °F):</b>         | 59 hPa (44.3 mm Hg)                  |
| · <b>Density at 20 °C (68 °F):</b>                | 0.8 g/cm <sup>3</sup> (6.68 lbs/gal) |
| · <b>Relative density:</b>                        | Not determined.                      |
| · <b>Vapor density:</b>                           | Not determined.                      |
| · <b>Evaporation rate:</b>                        | Not determined.                      |
| · <b>Solubility in / Miscibility with Water:</b>  | Fully miscible.                      |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                      |
| · <b>Viscosity</b>                                |                                      |
| Dynamic:  | Not determined.                      |
| Kinematic:  | Not determined.                      |
| · <b>Other information</b>                        | No relevant information available.   |

## 10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**  
Reacts violently with oxidizing agents.  
Highly flammable liquid and vapor.  
Toxic fumes may be released if heated above the decomposition point.  
Used empty containers may contain product gases which form explosive mixtures with air.  
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.
- **Conditions to avoid**  
Keep ignition sources away - Do not smoke.  
Store away from oxidizing agents.
- **Incompatible materials** No relevant information available.
- **Hazardous decomposition products**  
Under fire conditions only:  
Carbon monoxide and carbon dioxide  
Nitrogen oxides

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

### 64-17-5 Ethanol

Oral	LD50	7060 mg/kg (rat)
Inhalative	LC50/4h	20000 mg/l (rat)

- **Primary irritant effect:**

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· **On the skin:**

Based on available data, the classification criteria are not met.

Causes mild skin irritation.

· **On the eye:** Irritating effect.

· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**

64-17-5 Ethanol

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· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**

Ingestion.

Inhalation.

Eye contact.

Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):**

Irritating to eyes.

Causes mild skin irritation.

· **Repeated dose toxicity:** No relevant information available.

· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

· **Carcinogenicity:** Based on available data, the classification criteria are not met.

· **Reproductive toxicity:** Based on available data, the classification criteria are not met.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity** No relevant information available.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

· **Mobility in soil:** No relevant information available.

· **Additional ecological information**

· **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No relevant information available.

## 13 Disposal considerations

· **Waste treatment methods**

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• **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

• **Uncleaned packagings**

• **Recommendation:** Disposal must be made according to official regulations.

• **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

• **UN-Number**

• DOT, ADR/RID/ADN, IMDG, IATA UN1170

• **UN proper shipping name**

• DOT Ethanol solution  
• ADR/RID/ADN, IMDG, IATA ETHANOL SOLUTION

• **Transport hazard class(es)**

• DOT



• Class 3  
• Label 3

• **ADR/RID/ADN**



• Class 3 (F1)  
• Label 3

• **IMDG, IATA**



• Class 3  
• Label 3

• **Packing group**

• DOT, ADR/RID/ADN, IMDG, IATA II

• **Environmental hazards**

Not applicable.

• **Special precautions for user**

Warning: Flammable liquids

• **Danger code (Kemler):**

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- |  |   |
|--|---|
| · <b>EMS Number:</b>   | F-E,S-D   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.   |
| · <b>Transport/Additional information:</b>                                       |   |
| · <b>DOT</b>   |   |
| · <b>Quantity limitations</b>  | On passenger aircraft/rail: 5 L<br>On cargo aircraft only: 60 L |

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Ethanol - listing refers specifically to alcoholic beverage consumption and is not applicable for product.

64-17-5	Ethanol
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· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

Ethanol - listing refers specifically to alcoholic beverage consumption and is not applicable for product.

64-17-5	Ethanol
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· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

64-17-5	Ethanol	1
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· **Canadian Domestic Substances List (DSL) (Substances not listed.):**

All ingredients are listed.

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## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

### • Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bio-accumulable, Toxic

vPvB: very Persistent and very Bioaccumulative

OSHA: Occupational Safety & Health Administration

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Sol. 2: Flammable solids – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

### • Sources

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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