Safety Data Sheet

Acetaldehyde-d₄

Section 1. Chemical product and company identifications

Product code: D-0163
Chemical formula: C₂D₄O
CAS: 1632-89-9
CAS (unlabelled): 75-07-0
Synonyms: Ethanal

Supplier / Manufacturer:
C/D/N Isotopes Inc.
88 Leacock Street
Pointe-Claire (Québec) H9R 1H1
Phone: 514-697-6254
Toll-Free (Canada & USA): 1-800-565-4696
Fax: 514-697-6148
Website: www.cdnisotopes.com

In case of emergency:
TOXYSCAN HOTLINE: 1-855-780-0599

Section 2. Hazards identifications

Physical state: Liquid
Warning: Extremely flammable liquid and vapour. Harmful if swallowed. Causes serious eye irritation.
Routes of entry: Inhalation, ingestion, skin and eyes

GHS (Globally Harmonized System of Classification and Labelling of Chemicals):

GHS Classification:
- Flammable liquids (Category 1)
- Acute toxicity, Oral (Category 4)
- Eye irritation (Category 2A)
- Germ Cell Mutagenicity (Category 2)
- Carcinogenicity (Category 2)
- Specific target organ toxicity - single exposure (Category 3), Respiratory system

GHS Label elements:
- Pictograms: 🟥 ⚠ ⚠
- Signal word: Danger

Hazards statement:
- H224 Extremely flammable liquid and vapour.
- H302 Harmful if swallowed.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H341 Susppected of causing genetic defects.
- H351 Suspected of causing cancer.

Precautionary statement:
- P210 Keep away from heat/ hot surfaces/ spark/ open flames/ ignition sources. No smoking.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Section 3. Composition and information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde-d₄</td>
<td>1632-89-9</td>
<td>&gt; 96</td>
</tr>
</tbody>
</table>
Section 4. First aid measures

**Eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Skin contact:** Wash off with soap and plenty of water. Consult a physician.

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

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

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

Section 5. Firefighting measures

**Flammability of the product:** Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Lower explosion limit:** 4 Vol%  
**Upper explosion limit:** 60 Vol%  
**Auto-ignition temperature:** 140 °C (284 °F)  
**Flash point:** -39 °C (-38 °F)

**Products of combustion:** Hazardous decomposition products formed under fire conditions: Carbon oxides.

**Firefighting media and instructions:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

Section 6. Accidental release measures

**Personal precautions:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

**Environmental precautions:** Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Section 7. Handling and storage

**Handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Provide appropriate exhaust ventilation. Keep away from sources of ignition - No smoking.

**Storage:** STORE REFRIGERATED. Adequate ventilation. Protect from heat and ignition sources. Protect from air and moisture.

Section 8. Exposure Controls, Personal Protections

**Engineering controls:** Use mechanical exhaust or laboratory fumehood to avoid exposure.

**Eyes:** Safety glasses with side-shields conforming to NIOSH (US) or EN 166 (EU).

**Respiratory:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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).

**Hands:** Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Skin/body:** Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9. Physical and chemical properties (unlabelled)

**Molecular weight:** 44.05 g/mol  
**Physical status:** Liquid  
**Color:** Colorless  
**Odour:** Pungent  
**Density:** 0.785 g/cm³  
**Melting point:** -125 °C (-193 °F)  
**Boiling point:** 21 °C (70 °F)  
**Vapour pressure:** 986 hPa (740 mmHg) at 20 °C (68 °F)  
**Vapour density:** 1.52 (Air = 1)  
**Partition coefficient (octanol/water):** log Pow: -0.34  
**Water solubility:** Completely miscible
Section 10. Stability and reactivity

Stability and reactivity: Stable under recommended storage conditions.
Incompatibility: Strong oxidizing/reducing agents.
Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides.
Reactivity conditions: Heat, flames and sparks.

Section 11. Toxicological information (unlabelled)

Toxicological data: Acetaldehyde

Information on ingredients:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>75-07-0</td>
<td>Oral - Rat - 661 mg/kg</td>
<td>Inhalation - Rat - 4 h - 13,300 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal - Rabbit - 3,540 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Potential acute effects
- **Eyes**: Causes serious irritation.
- **Skin**: May be harmful if absorbed through skin. May cause skin irritation.
- **Inhalation**: May be harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion**: Harmful if swallowed.

Potential chronic effects
- **Carcinogenic effects**: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Acetaldehyde).
- **Mutagenic effects**: Laboratory experiments have shown mutagenic effects.
- **Teratogenic effects**: No data available.
- **Medical conditions aggravated by overexposure**: No data available.

Section 12. Ecological information

Ecological data:

<table>
<thead>
<tr>
<th>Name</th>
<th>Results</th>
<th>Species</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>31 mg/l LC50</td>
<td>Pimephales promelas</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>57.4 mg/l EC50</td>
<td>Daphnia magna</td>
<td>48 h</td>
</tr>
<tr>
<td></td>
<td>&gt;100 mg/l EC50</td>
<td>Pseudokirchneriella subcapitata</td>
<td>24 h</td>
</tr>
</tbody>
</table>

Effects on environment: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Mobility: No data available.
Environmental precautions: No data available.
Persistence and degradability: No data available.
Bioaccumulative potential: No data available.

Section 13. Disposal considerations

Waste disposal: Contact a licensed professional waste disposal service to dispose of this material.

Section 14. Transportation information

Classification DOT/IMDG/IATA label:

Shipping name: Acetaldehyde
UN number: UN1089
Class: 3
Packaging group: I

Additional information: None
Section 15. Regulatory information

**UNITED STATES:**

**NFPA classification**

- Health: 2
- Flammable: 4
- Reactivity: 2
- Special conditions: None

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

**U.S. Federal regulations:**

- TSCA 8(b) inventory: Acetaldehyde
- SARA 302/304/311/312 extremely hazardous substances: Not Listed
- SARA 302/304 emergency planning and notification: Not Listed
- SARA 302/304/311/312 hazardous chemicals: Not Listed
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard: Listed
- CWA (Clean Water Act) 307: Not Listed
- CWA (Clean Water Act) 311: Not Listed
- CAA (Clean Air Act) 112 accidental release prevention: Not Listed
- CAA (Clean Air Act) 112 regulated flammable substances: Not Listed
- CAA (Clean Air Act) 112 regulated toxic substances: Not Listed

**State regulations:**

- DEA List I Chemicals (Precursor Chemicals): Not Listed
- DEA List II Chemicals (Essential Chemicals): Not Listed
- Substances in Massachusetts: Listed
- New York – Dangerous substances with acute effects: Not Listed
- Dangerous substances in Pennsylvania – right to know: Listed

**WHMIS (Canada):**

- B2 - Flammable liquid
- D2A - Very toxic material causing other toxic effects
- D2B - Toxic material causing other toxic effects

Section 16. Additional information

**References:**

- Manufacturer's Material Safety Data Sheet.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Federal act on the controlled products
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

**Date of issue:** February 6th, 2020

**Version:** 3

**Elaborated by:** Toxyscan Inc., 1-866-780-0599

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