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**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY**

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**1.1 Product identifiers**

Product Name : 4-Hydroxynonenal  
Product Number : AUR10442  
Manufacturer : Aurora Medbiochem  
Address : 938 South Andreasen Drive, Suite E  
Escondido, CA 92029 USA

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Emergency telephone**

Emergency Phone # : +1-760-738-1508  
Fax Phone # : +1-760-738-1530

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**SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS**

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Components	CAS Number	EC-No.	Molecular Weight	Chemical Formula
4-Hydroxynonenal	75899-68-2	--	156.2	C <sub>9</sub> H <sub>16</sub> O <sub>2</sub>

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**SECTION 3: HAZARDS IDENTIFICATION**

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Product/ Chemical Name	Description	Safety Information	Concentration
4-Hydroxynonenal	Liquid (contains ethanol)	See below	--

**Emergency Overview:**

**OSHA Hazards:** Irritant

**Classification according to Regulation (EC) No 1272/2008**

Flammable liquids (Category 2), H225

Eye irritation (Category 2), H319

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:** Danger

**Hazard statement(s):**

H225 Highly flammable liquid and vapor.

H319 Causes serious eye irritation.

**Precautionary statement(s):**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use non-sparking tools.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

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**HMIS Classification**

**Health hazard:** 2

**Flammability:** 2

**Physical hazards:** 0

**NFPA Rating**

**Health Hazard:** 2

**Fire:** 2

**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation:** May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin:** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes:** May cause eye irritation.

**Ingestion:** May be harmful if swallowed

**Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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**SECTION 4: FIRST AID MEASURES**

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**General advice**

Show this material safety data sheet to the doctor in attendance.

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**In case of skin contact:** Wash off with soap and plenty of water.

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

**If swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water.

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**SECTION 5: FIREFIGHTING MEASURE**

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**5.1 Extinguishing media**

**Suitable extinguishing media**

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

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

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

Hazardous decomposition products formed under fire conditions— see section 10.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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**Personal precautions:** Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

**Environmental precautions:** Do not let product enter drains.

**Methods for cleaning up:** Sweep up and shovel. Keep in suitable, closed containers for disposal

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## SECTION 7: HANDLING AND STORAGE

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### 7.1 Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces, and sources of ignition. precautionary measures against static discharge.

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

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place.

**Recommended storage temperature :**  $\leq -70^{\circ}\text{C}$

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## SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

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Contains no substances with occupational exposure limit values.

#### Personal protective equipment

##### Respiratory protection:

Required when vapours/aerosols are generated. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Recommended Filter type: Filter type ABEK

##### 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:

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

##### Skin and body protection:

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures:** General industrial hygiene practice.

##### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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Property	4-Hydroxynonenal
<b>Appearance:</b>	Liquid
<b>pH:</b>	No data available
<b>Water Solubility:</b>	EOH (10 mg/ml)
<b>Other Solubility:</b>	No data available
<b>Boiling Point (°C):</b>	No data available
<b>Melting Point (°C):</b>	No data available
<b>Flash Point (°C):</b>	No data available

Date: 9/01/2022

<b>Ignition Temperature (°C):</b>	No data available
<b>Density:</b>	No data available

## SECTION 10: STABILITY AND REACTIVITY

Property	4-Hydroxynonenal
<b>Chemical stability</b>	Stable under recommended storage conditions
<b>Conditions to avoid:</b>	Protect from air and light
<b>Materials to avoid:</b>	Strong oxidizing agents
<b>Hazardous decomposition products:</b>	Combustible.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 4-Hydroxynonenal

**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:** no data available

**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 (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:** no data available

**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:** May be harmful if swallowed.

**Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: not available

### **ethanol**

**Acute toxicity**

LD50 Oral - Rat - male and female - 10.470 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 124,7 mg/l - vapor

(OECD Test Guideline 403)

Dermal: No data available

**Skin corrosion/irritation**

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Date: 9/01/2022

Skin - Rabbit

Result: No skin irritation - 24 h

(OECD Test Guideline 404)

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

**Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Methanol

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Method: OECD Test Guideline 478

Species: Mouse - male

Result: Positive results were obtained in some in vivo tests.

**Carcinogenicity:** No data available

**Reproductive toxicity:** No data available

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**SECTION 12: ECOLOGICAL INFORMATION**

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**4-Hydroxynonenal:**

**Toxicity:** No data available

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Results of PBT and vPvB assessment:** No data available

**Other adverse effects:** No data available

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**SECTION 13: DISPOSAL CONSIDERATION**

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**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging:** Dispose of as unused product.

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**SECTION 14: TRANSPORT INFORMATION**

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**14.1 UN number**

ADR/RID: 1170

IMDG: 1170

IATA: 1170

**14.2 UN proper shipping name**

ADR/RID: ETHANOL SOLUTION

IMDG: ETHANOL SOLUTION

IATA: Ethanol solution

**SAFETY DATA SHEET**  
**Cat# AUR10442, 4-Hydroxynonenal**



Date: 9/01/2022

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**14.3 Transport hazard class(es)**

ADR/RID: 3

IMDG: 3

IATA: 3

**14.4 Packaging group**

ADR/RID: III

IMDG: III

IATA: III

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precaution**

No data available

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**SECTION 15: REGULATORY INFORMATION**

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This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**OSHA Hazards:** Flammable

**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:** Acute Health Hazard

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

**Pennsylvania Right To Know Components:** 4-Hydroxynonenal, CAS-No. 75899-68-2

**New Jersey Right To Know Components:** 4-Hydroxynonenal, CAS-No. 75899-68-2

**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.

**EU regulations**

Component	Risk Phrases
4-Hydroxynonenal	Flammable liquid

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**SECTION 16: OTHER INFORMATION**

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**DISCLAIMER:**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. Aurora Medbiochem Co. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.