

MSDS - 4-Hydroxynonenal
MATERIAL SAFETY DATA SHEET

Date: April 22, 2004

Section 1 - Product and Company Information

Product Name 4-Hydroxynonenal
Catalog Number 26526

Company OXIS INTERNATIONAL
Street Address 6040 N CUTTER CIRCLE, #317
City, State, Zip, Country PORTLAND OR 97217 US
Telephone Number: 503 283 3911
Toll Free Number: 800 547 3686
Fax: 503 283 4058

Section 2 - Composition/Information on Ingredient

Substance Name CAS # SARA 313
4-Hydroxynonenal 75899-68-2 NA

Chemical Formula C9H16O2

Synonym H-Hydroxy-2-nonenal; HNE, 4HNE

Section 3 - Hazards Identification

The hazardous and toxicological properties of this material have not been fully investigated. All materials present may present unknown hazards and should be used with caution.

Highly flammable.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do NOT induce vomiting unless directed to do so by medical personnel.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing is difficult, call a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. Check for and remove any contact lenses.

Aggravating conditions

Repeated or prolonged exposure is not known to aggravate medical condition.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
Flammable

EXTINGUISHING MEDIA
Suitable: Flammable liquid.
SMALL FIRE: Use DRY Chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and full turnout gear. Use approved/certified respirator or equivalent.

Specific Hazard(s): Emits carbon oxides on thermal decomposition.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

METHODS FOR CLEANING UP
Small spill or leak: Absorb with an inert material and put the spilled material in an appropriate waste disposal container.

Large spill or leak: Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed.

Section 7 - Handling and Storage

HANDLING
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe gas/fumes/ vapor/spray.

STORAGE
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Do not store above -70°C (-94°F).

SPECIAL REQUIREMENTS
Recommended use: Use original container.

Section 10 - Stability and Reactivity

STABILITY

Stable: This product is stable.
Materials/conditions to Avoid: N/A

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon Oxides

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: N/A

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: N/A
Skin Absorption: N/A
Eye Contact: N/A
Inhalation: N/A
Ingestion: N/A

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Repeated or prolonged exposure is not known to aggravate medical condition.

RTECS#: RA8510000

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

INTERNATIONAL TRANSPORT REGULATIONS

UN Number: UN1170

LAND/ROAD/RAILWAY

Proper shipping name: Ethanol solution
ADR/RID Class: CLASS 3: Flammable liquid A
Packing Group: III

SEA

Proper shipping name: Ethanol solution
IMDG Class: CLASS 3.1: (Low flashpoint group of liquids having a flashpoint below -18°C (0°F) c.c.).
Packing Group: III

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AIR

Proper shipping name: Ethanol solution
UN/ID Number: UN1170
IATA DGR Class: CLASS 3: Flammable liquid A

SPECIAL PROVISIONS FOR TRANSPORT
N/A

Section 15 - Regulatory Information

EU REGULATIONS

Classification: Highly Flammable
Risk Phrases: R11 - Highly Flammable
Safety Phrases: S7 - Keep container tightly closed
S16 - Keep away from sources of ignition - no smoking.

US FEDERAL REGULATIONS

Clean Water Act (CWA) 307: No products were found.
TSCA: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
SARA 313 toxic chemical notification and release reporting: No products were found.

HCS CLASSIFICATION

CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F).

WHMIS (Canada)

No products were found.
CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

Section 16 - Other Information

Hazardous Material Information System

Health: 0
Fire Hazard: 1
Reactivity: 0
Personal Protection: a

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The information contained in this MSDS is believed to be correct to the best of our knowledge. However, we make no warranty, expressed or implied, with respect to such information. The information may not be all-inclusive. The user should make an independent determination of the suitability of the information based on all sources available and adopt appropriate safety precautions. OXIS International, Inc. shall

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not be held liable for any damage resulting from contact or handling of this product.