

MATERIAL SAFETY DATA SHEET

4-hydroperoxy-2-Nonenal

Page: 1

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 09/01/2005
Revision: 08/18/2005

Date Created: 08/18/2005

1. Product and Company Identification

Product Code: 10004413
Product Name: 4-hydroperoxy-2-Nonenal
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335
Chemical Family: Autooxidation
Synonyms: 4-hydroperoxy-2E-nonenal;

2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA PEL	ACGIH TWA	Other Limits
1. 4-hydroperoxy-2-Nonenal	7439-43-2	1.0 %	No data.	No data.	No data.
2. Acetone	67-64-1	99.0 %	8H TWA: 750 ppm (1800 mg/m ³)	500 ppm	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. 4-hydroperoxy-2-Nonenal	NA	No data.	No data.	No data.	No data.
2. Acetone	AL3150000	No data.	No data.	750 ppm	No data.

3. Hazards Identification

Emergency Overview: No data available.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Potential Health Effects (Acute and Chronic): The hazards identified with this product are those associated with the solvent(s).
Harmful by inhalation, ingestion, or skin absorption.
Irritating to eyes, respiratory system and skin.
Material is irritating to the mucous membranes and upper respiratory tract.
The toxicological properties of this compound have not been fully evaluated.
LD 50/LC 50: Please refer to Section 11.
Signs and Symptoms Of Exposure: Inflammation of the eye; characterized by redness, watering, and itching.
Skin inflammation; characterized by itching, scaling, reddening, or, occasionally, blistering.
Medical Conditions Generally Aggravated By Exposure: Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt:	-18.10 C Method Used: CC
Explosive Limits:	LEL: 2.6% at 25.0 C UEL: 12.8% at 25.0 C
Autoignition Pt:	464.90 C
Fire Fighting Instructions:	As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Flammable Properties and Hazards:	Extremely explosive in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials. Extremely flammable in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials. Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back.
Hazardous Combustion Products:	carbon dioxide carbon monoxide
Extinguishing Media:	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Use of water spray when fire fighting may be inefficient.
Unsuitable Extinguishing Media:	No data available.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled:	Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. After removal, ventilate contaminated area and flush thoroughly with water.
---	---

7. Handling and Storage

Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.
Precautions To Be Taken in Handling:	Avoid breathing (dust, vapor, mist, gas). Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling.
Precautions To Be Taken in Storing:	Store at correct temperature.
Other Precautions:	Keep away from heat, sparks, and flame.

8. Exposure Controls/Personal Protection

Protective Equipment Summary - Hazard Label Information:	Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood
Respiratory Equipment (Specify Type):	Government approved respirator as conditions warrant.
Eye Protection:	Safety glasses
Protective Gloves:	Latex disposable gloves
Other Protective Clothing:	Lab coat
Engineering Controls (Ventilation etc.):	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Melting Point:	No data.
Boiling Point:	No data.
Autoignition Pt:	464.90 C
Flash Pt:	-18.10 C Method: CC
Explosive Limits:	LEL: 2.6% at 25.0 C UEL: 12.8% at 25.0 C
Specific Gravity (Water = 1):	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Evaporation Rate (vs Butyl Acetate=1):	No data.
Solubility in Water:	0.5 mg/ml* at 25.0 C
Other Solubility Notes:	*Ethanol:PBS (pH 7.2)(1:6), sol. in EtOH, DMSO, & DMF
Percent Volatile:	No data.
Corrosion Rate:	No data.
Formula:	C9H16O3
Molecular Weight:	172.20
pH:	No data.
Appearance and Odor:	A clear, colorless solution

10. Stability and Reactivity

Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	protect from flames protect from heat protect from ignition sources protect from impact or mechanical shock
Incompatibility - Materials To Avoid:	acids oxidizing agents
Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide
Hazardous Polymerization:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Polymerization:	No data available.

11. Toxicological Information

Toxicological Information:	The toxicological effects of this compound have not been thoroughly studied. Acetone - Irritation Data: Skin (rabbit): 500 mg 24H mild effect Eyes (rabbit): 20 mg 24H moderate effect Acetone - Toxicity Data: Oral LD50 (rabbit): 5340 mg/kg
Chronic Toxicological Effects:	Investigated as a mutagen and reproductive effector. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Acetone RTECS Number: AL3150000
Carcinogenicity/Other Information:	No data available.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

MATERIAL SAFETY DATA SHEET

4-hydroperoxy-2-Nonenal

Page: 4
Printed: 09/01/2005
Revision: 08/18/2005

12. Ecological Information

Ecological Information: Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name: Acetone
DOT Hazard Class: 3
DOT Hazard Label: FLAMMABLE LIQUID
UN/NA Number: 1090
DOT Packing Group: II

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. 4-hydroperoxy-2-Nonenal	7439-43-2	No	No	No	No
2. Acetone	67-64-1	No	Yes 5000 LB	No	Yes

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
1. 4-hydroperoxy-2-Nonenal	7439-43-2	No	No	No	No
2. Acetone	67-64-1	No	No	No	No

SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:

Sec.302: EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. * indicates 10000 LB TPQ if not volatile.
Sec.304: EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. ** indicates statutory RQ.
Sec.313: EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.
Sec.110: EPA SARA 110 Superfund Site Priority Contaminant List

TSCA (Toxic Substances Control Act) Lists:

5A(2): Chemical Subject to Significant New Rules (SNURS)
6A: Commercial Chemical Control Rules
8A: Toxic Substances Subject To Information Rules on Production
8A CAIR: Comprehensive Assessment Information Rules - (CAIR)
8A PAIR: Preliminary Assessment Information Rules - (PAIR)
8C: Records of Allegations of Significant Adverse Reactions
8D: Health and Safety Data Reporting Rules
8D TERM: Health and Safety Data Reporting Rule Terminations

Other Important Lists:

CWA NPDES: EPA Clean Water Act NPDES Permit Chemical
CAA HAP: EPA Clean Air Act Hazardous Air Pollutant
CAA ODC: EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)
CA PROP 65: California Proposition 65

16. Other Information

Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.
DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.