1 PRODUCT AND COMPANY IDENTIFICATION

Organic Peroxides
2000 Market Street
Philadelphia, Pa 19103

EMERGENCY PHONE NUMBERS:
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(303) 623-5716 (24Hrs)

Information Telephone Numbers
Customer Service
1-800-558-5575

Product Name
LUPEROX 256
Product Synonym(s)
Formerly LUPERSOL 256

Chemical Family
Organic Peroxides-Peroxyesters

Chemical Formula
2,5-Dimethyl-2,5-di-(2-ethylhexanoylperoxy)hexane

EPA Reg Num
Impurities including:

Ingredient Name
CAS Registry Number
Typical Wt. %
OSHA

2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane
13052-09-0
> 90%
Y

3,3,6,6-Tetramethyl-1,2-dioxacyclohexane
22431-89-6
< 2%
Y

2,5-Dimethylhexane-2,5-dihydroperoxide
3025-88-5
< 2%
Y

Hexane
110-54-3
< 1%
N

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to
the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are either on the TSCA Inventory list or exempt as impurities.

2 COMPOSITION / INFORMATION ON INGREDIENTS

3 HAZARDS IDENTIFICATION

Emergency Overview
Colorless liquid, slight mint odor

WARNING!
ORGANIC PEROXIDE
THERMALLY UNSTABLE - REFRIGERATION REQUIRED

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. On the
basis of available information, exposure to this material is not expected to produce significant adverse human health
effects; however, use of appropriate good industrial hygiene and safety precautions to control exposure is
recommended when handling or using this material.
4 FIRST AID MEASURES

IN CASE OF CONTACT, flush the area with plenty of water. Remove material from clothing. Wash clothing before reuse.

IF SWALLOWED, induce vomiting as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature  NE
Flash Point  49 C / 120 F  Flash Point Method  Seta CC
Flammable Limits - Upper  NE
   Lower  NE

Extinguishing Media

Use water spray, foam or dry chemical.

Fire Fighting Instructions

Fight fire with large amounts of water from a safe distance. Use water spray to cool containers exposed to fire. Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use. After a fire, wait until the material has cooled to room temperature before initiating clean up activities.

Fire and Explosion Hazards

Contact with incompatible materials or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Use inert, non-combustible absorbant material. Sweep or scoop up using non-sparking tools. Wet down and dispose of immediately. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE
7 HANDLING AND STORAGE

Handling
Contact with incompatible materials or exposure to temperatures exceeding SADT (See Section (9) may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite. Keep away from heat sparks and flame. Avoid contamination. Use only with adequate ventilation. Use explosion proof equipment. Keep container closed. Do not reuse container as it may retain hazardous product residue. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Wash thoroughly after handling. Minimize exposure to ambient temperatures.

Storage

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls
Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Eye / Face Protection
Use good industrial practice to avoid eye contact.

Skin Protection
Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection
Avoid breathing vapor or mist. Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

<table>
<thead>
<tr>
<th>Exposure Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td></td>
</tr>
<tr>
<td>ACGIH Skin designator</td>
<td>Y</td>
</tr>
<tr>
<td>ACGIH TWA</td>
<td>50 ppm 176 mg/m3</td>
</tr>
<tr>
<td>OSHA TWA PEL</td>
<td>500 ppm 1800 mg/m3</td>
</tr>
</tbody>
</table>
9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/Odor</td>
<td>Colorless liquid, slight mint odor</td>
</tr>
<tr>
<td>pH</td>
<td>NE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.928-0.950 @ 25 C</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>2.0</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>NE</td>
</tr>
<tr>
<td>Melting Point</td>
<td>&lt;-4 C</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>NE</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>ne</td>
</tr>
<tr>
<td>Solubility In Water</td>
<td>0.17 mg/g</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NE</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>NE</td>
</tr>
<tr>
<td>SADT</td>
<td>40 C/104 F (35 lb ctn.)</td>
</tr>
</tbody>
</table>

This material is chemically unstable and should only be handled under specified conditions. See HANDLING AND STORAGE section of this MSDS for specified conditions.

SADT - Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction. This reaction will generate flammable vapors which may autoignite. The length of time to generated a decomposition reaction, after the SADT has been reached or exceeded, is dependent upon how much the SADT has been exceeded and the length of time needed for the reaction exotherm (heat spike from increasing decomposition rate) to initiate a rapid decomposition reaction. Typically, SADT is inversely proportional to package size. Larger packages will have a lower SADT due to smaller ratio to heat transfer area to volume of product.

Other Physical Data

Active Oxygen Content = 6.7% min.
10 STABILITY AND REACTIVITY

Stability
This material is chemically unstable and should only be handled under specified conditions. See HANDLING AND STORAGE section of this MSDS for specified conditions.

SADT - Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction. This reaction will generate flammable vapors which may autoignite. The length of time to generated a decomposition reaction, after the SADT has been reached or exceeded, is dependent upon how much the SADT has been exceeded and the length of time needed for the reaction exotherm (heat spike from increasing decomposition rate) to initiate a rapid decomposition reaction. Typically, SADT is inversely proportional to package size. Larger packages will have a lower SADT due to smaller ratio to heat transfer area to volume of product.

Hazardous Polymerization
Does not occur.

Incompatibility
Contact with foreign materials, such as, strong acids, alkalis, oxidizers, reducing agents, amines, and promoters/accelerators may result in a violent decomposition reaction or in product degradation.

Hazardous Decomposition Products
Temperatures at or above the SADT can result in the release of hazardous decomposition products which are flammable and may autoignite.

11 TOXICOLOGICAL INFORMATION

Toxicological Information
Data on this material and/or its components are summarized below.

2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane
Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD50 >12,918 mg/kg), absorbed through skin (rabbit LD50 >8,000 mg/kg) or inhaled (rat 4-hr LC50 >800 mg/l) and practically non-irritating to rabbit eyes (1.4/110) and skin (4-hr exposure, 0.8/8.0; similar material).

2,5-Dimethylhexane-2,5-dihydroperoxide
Single exposure (acute) studies indicate that this material is slightly toxic to rats if swallowed (LD50 2,356 mg/kg), no more than slightly toxic to rats if absorbed through skin (LD50 >2,000 mg/kg), practically non-irritating to rabbit skin (0.9/8.0), and corrosive to rabbit eyes.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information
No data are available.

Chemical Fate Information
No data are available.
13 DISPOSAL CONSIDERATIONS

Waste Disposal
Dispose of in accordance with federal, state and local regulations. Dilution followed by incineration is the preferred method. Dilution ration of 10:1 in a clean, compatible, combustible solvent (i.e., Fuel Oil #2, mineral oil) will reduce reactivity hazard during incineration and transportation.

14 TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT Name</th>
<th>Organic Peroxide Type C, Liquid, Temperature Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Technical Name</td>
<td>[2,5-Dimethyl-2,5-di-(2-Ethylhexanoylperoxy) Hexane, &lt;= 100% ]</td>
</tr>
<tr>
<td>DOT Hazard Class</td>
<td>5.2</td>
</tr>
<tr>
<td>UN Number</td>
<td>3113</td>
</tr>
<tr>
<td>DOT Packing Group</td>
<td>PG II</td>
</tr>
<tr>
<td>RQ</td>
<td></td>
</tr>
<tr>
<td>DOT Special Information</td>
<td>DOT Control Temperature = 20 C</td>
</tr>
<tr>
<td></td>
<td>DOT Emergency Temperature = 25 C</td>
</tr>
</tbody>
</table>

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

- **Immediate (Acute) Health**: N
- **Delayed (Chronic) Health**: N
- **Fire**: Y
- **Reactive**: Y
- **Sudden Release of Pressure**: N

The components of this product are either on the TSCA Inventory list or exempt as impurities.

**Ingredient Related Regulatory Information:**

**SARA Reportable Quantities**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CERCLA RQ</th>
<th>SARA TPQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>5000 LBS</td>
<td>NE</td>
</tr>
<tr>
<td>3,3,6,6-Tetramethyl-1,2-dioxacycloclohexane</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>2,5-Dimethylhexane-2,5-dihydroperoxide</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

**SARA Title III, Section 313**

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

**Massachusetts Right to Know**

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

- Hexane

**New Jersey Right to Know**

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

- 2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane
- 2,5-Dimethylhexane-2,5-dihydroperoxide
New Jersey Right to Know
This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.
Hexane

Pennsylvania Right to Know
This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.
Hexane

16 OTHER INFORMATION

Revision Information
Revision Date 12 JUN 2002  Revision Number 6
Supercedes Revision Dated 11-JUN-2002

Revision Summary
Section 14 Update

Key
NE= Not Established  NA= Not Applicable  (R) = Registered Trademark

Miscellaneous
Back-up emergency refrigeration should be available in case primary refrigeration is lost. Emergency dry ice source(s) should be known in case of refrigeration failure. Temperature in storage areas should be monitored. Refrigeration systems should have high temperature alarms to warn of loss of refrigeration.

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