



LUPEROX® 101

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
2000 Market Street
Philadelphia, Pennsylvania 19103

Functional Additives

Customer Service Telephone Number: (800) 331-7654
(Monday through Friday, 8:30 AM to 5:30 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (303) 623-5716
(24 hrs., 7 days a week)

Product Information

Product name: LUPEROX® 101
Synonyms: Dialkyl
Molecular formula: C16 H34 O4
Chemical family: Organic peroxide - dialkyl peroxides
Product use: initiator/catalyst

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: yellow
Physical state: liquid
Odor: mild

WARNING!
ORGANIC PEROXIDE.
HAZARDOUS DECOMPOSITION MAY OCCUR.
COMBUSTIBLE LIQUID AND VAPOR.

Potential Health Effects

Primary routes of exposure:
Inhalation and skin contact.

Signs and symptoms of acute exposure:
The product, in the form supplied, is not anticipated to produce significant adverse human health effects.

Skin:
No more than slightly toxic. Slightly irritating. (based on components)

Eyes:
Practically non-irritating. (based on components)

Ingestion:

Practically nontoxic. (based on components)

Remarks:

Handle in accordance with good industrial hygiene and safety practice.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	OSHA Hazardous
Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)	78-63-7	<= 97 %	Y
1,2-Dioxane, 3,3,6,6-tetramethyl-	22431-89-6	<= 4 %	N
Peroxide, bis(1,1-dimethylethyl)	110-05-4	<= 1 %	Y

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

This material is classified as hazardous under Federal OSHA regulation.

4. FIRST AID MEASURES

Inhalation:

If inhaled, remove victim to fresh air.

Skin:

In case of contact, immediately flush skin with plenty of water. Remove material from clothing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:

Immediately flush eye(s) with plenty of water.

Ingestion:

If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flash point 160 °F (71 °C) (Setaflash closed cup)

Auto-ignition temperature: no data available

Lower flammable limit (LFL): no data available

Upper flammable limit (UFL): no data available

Extinguishing media (suitable):

Water spray, Foam, Dry chemical

Protective equipment:

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.

Further firefighting advice:

Fight fire with large amounts of water from a safe distance.
Cool closed containers exposed to fire with water spray.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.

Fire and explosion hazards:

Contact with materials to avoid or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.
When burned, the following hazardous products of combustion can occur:
Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak:

Prevent further leakage or spillage if safe to do so. Use inert, non-combustible absorbant material such as sodium bicarbonate, sodium carbonate, calcium carbonate, clean sand or non-acidic clay directly on the spilled peroxide, then wet down (dampen) the mixture with water. Sweep or scoop up using non-sparking tools and place into suitable container for disposal. The sweepings should be wetted down further with water. Dispose of promptly. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. 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

Handling

General information on handling:

Contact with materials to avoid or exposure to temperatures exceeding the SADT may result in a self accelerating decomposition reaction with release of flammable vapors which may autoignite.
Keep away from heat, sparks and flames.
Prevent product contamination.
Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.
Handle in accordance with good industrial hygiene and safety practices.
Keep container tightly closed and away from combustible materials.
Emptied container retains vapor and product residue.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

General information on storage conditions:

Outside or detached storage is preferred. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Store out of direct sunlight in a cool well-ventilated place. Static electricity may accumulate when transferring material. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. All storage containers, including drums, cylinders and IBCs, must be bonded and grounded during filling and emptying operations. Store in original container. Store away



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from combustibles and materials to avoid. Refer also to National Fire Protection Association (NFPA) Code 432, Code for the Storage of Organic Peroxide Formulations.

Storage stability – Remarks:

Follow the recommended storage temperatures provided in this Section in order to maintain stability and oxygen content.

Storage incompatibility – General:

Store separate from:

Strong acids

Alkaline materials

Strong oxidizing agents

Temperature tolerance – Do not store above:

100 °F (38 °C)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Engineering controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:

Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for a 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 or where exposure limit may be significantly exceeded, 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.

Skin protection:

Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash thoroughly after handling.

Eye protection:

Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color: yellow

Physical state: liquid

Odor: mild

pH:	no data available
Density:	no data available
Specific Gravity (Relative density):	no data available
Vapor pressure:	4.500 mmHg (104 °F (40 °C))
Vapor density:	no data available
Boiling point/boiling range:	no data available
Freezing point:	no data available
Melting point/range:	46 °F (8 °C)
Solubility in water:	no data available
Self-Accelerating Decomposition Temperature (SADT):	187 °F (86 °C) 30 pound container
Active oxygen content:	10.25 - 10.47 %

10. STABILITY AND REACTIVITY

Stability:

This material is chemically unstable and should only be handled under specified conditions.

Hazardous reactions:

Hazardous polymerization does not occur.

Materials to avoid:

Strong acids
Alkaline materials
Oxidizing agents

Conditions / hazards to avoid:

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 generate 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 decomposition products:

Temperatures at or above the SADT can result in the release of hazardous decomposition products which are flammable and may autoignite.
Thermal decomposition giving flammable and toxic products

Carbon oxides

11. TOXICOLOGICAL INFORMATION

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

Data for Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl) (78-63-7)

Acute toxicity

Oral:

No more than slightly toxic. (rat) LD50 > 2,000 mg/kg.

Dermal:

Slightly toxic. (rabbit) LD50 = 4,100 mg/kg.

Skin Irritation:

Slightly irritating. (rabbit) Irritation Index: 2.25/8.0. (4 h)

Eye Irritation:

Practically non-irritating. (rabbit) Irritation Index: 1/110.

Skin Sensitization:

Repeated skin exposure. (guinea pig) Skin allergy was observed. (Weak response)

Genotoxicity

Assessment in Vitro:

No genetic changes were observed in laboratory tests using: bacteria

Genotoxicity

Assessment in Vivo:

No genetic changes were observed in a laboratory test using: mouse

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway

No data are available.

Ecotoxicology

No data are available.

13. DISPOSAL CONSIDERATIONS

Waste disposal:

Dilution followed by incineration is the preferred method. Dilution ratio of 10:1 in a clean, compatible, combustible solvent (i.e., Fuel Oil #2, mineral oil) will reduce reactivity hazard during incineration and transportation. Dispose of in accordance with federal, state and local regulations. 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. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number : 3105
 Proper shipping name : Organic peroxide type D, liquid
 Technical name : (2,5-Dimethyl-2,5-di(tert-butylperoxy) hexane, >52-100%)
 Class : 5.2
 Packaging group : II
 Marine pollutant : no

International Maritime Dangerous Goods Code (IMDG)

UN Number : 3105
 Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID
 Technical name : (2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE, >52-100%)
 Class : 5.2
 Marine pollutant : no
 Flash point : 160 °F (71 °C) Setflash closed cup

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	DSL	All components of this product are on the Canadian DSL list.
Japan. Kashin-Hou Law List	ENCS (JP)	Does not conform
Korea. Toxic Chemical Control Law (TCCL) List	KECI (KR)	Conforms to



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Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	Conforms to
China. Inventory of Existing Chemical Substances	IECSC (CN)	Conforms to
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	NZIOC	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:

Fire Hazard, Reactivity Hazard

SARA Title III – Section 313 Toxic Chemicals:

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.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

OSHA Regulated Carcinogens (NTP, IARC, OSHA Listed):

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.

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.

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.

United States – State Regulations

Massachusetts Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Peroxide, bis(1,1-dimethylethyl)	110-05-4

New Jersey Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)	78-63-7



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Peroxide, bis(1,1-dimethylethyl) 110-05-4

Pennsylvania Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)	78-63-7

Peroxide, bis(1,1-dimethylethyl) 110-05-4

1,2-Dioxane, 3,3,6,6-tetramethyl- 22431-89-6

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Latest Revision(s):

Reference number:	000000034071
Date of Revision:	07/31/2009
Date Printed:	07/31/2009

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