

**1. PRODUCT AND COMPANY IDENTIFICATION**Company

Arkema Canada Inc.  
1100 Burloak Drive, Suite 107  
Burlington, Ontario, L7L 6B2

Functional Additives

Customer Service Telephone Number: (800) 567-5726  
(Monday through Friday, 8:30 AM to 4:30 PM EST)

Emergency Information

Transportation: CANUTEC: (613) 996-6666  
(24 hrs., 7 days a week)  
Medical: Rocky Mountain Poison Center: (866) 767-5089  
(24 hrs., 7 days a week)

Product Information

Product name: LUPEROX® DDM-9  
Synonyms: Not available  
Molecular formula: Complex mixture  
Chemical family: Organic peroxide - ketone peroxides  
Product use: initiator/catalyst

**2. HAZARDS IDENTIFICATION**Emergency Overview

**DANGER!**  
ORGANIC PEROXIDE.  
HAZARDOUS DECOMPOSITION MAY OCCUR.  
CAUSES EYE BURNS.  
MAY CAUSE BLINDNESS.  
HARMFUL IF SWALLOWED.  
MAY CAUSE SKIN IRRITATION.  
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Potential Health Effects

**Primary routes of exposure:**  
Inhalation and skin contact.

**Signs and symptoms of acute exposure:**  
Can cause burns of eyes. May cause skin irritation. May cause irritation of respiratory tract. If swallowed may cause irritation of the digestive tract.

**Skin:**  
Practically nontoxic to slightly toxic. Moderately irritating. (based on components)

**Eyes:**  
Severely irritating to corrosive. (based on components)

**Ingestion:**

Slightly toxic to moderately toxic. (based on components)

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS-No.	Wt/Wt	WHMIS Controlled
Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester	6846-50-0	>= 30 - < 60 %	N
2-Butanone, peroxide	1338-23-4	>= 30 - < 60 %	Y
2,4-Pentanediol, 2-methyl-	107-41-5	>= 5 - < 10 %	Y
2-Butanone	78-93-3	>= 1 - < 5 %	Y
Hydrogen peroxide (H2O2)	7722-84-1	>= 1 - < 5 %	Y

The substance(s) marked with a "Y" in the above WHMIS Controlled column are those identified as hazardous chemicals under the Controlled Products Regulation.

**4. FIRST AID MEASURES**

**Inhalation:**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Skin:**

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation persists. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eyes:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

**Ingestion:**

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

**5. FIREFIGHTING MEASURES**

**Flash point:** 203 °F (95 °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.

Closed containers of this material may explode when subjected to heat from surrounding fire.

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.

**Hazardous combustion products:**

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

Hazardous organic compounds

**Explosion Data:**

Sensitivity to Mechanical Impact: No

Sensitivity to Static Discharge: No

**6. ACCIDENTAL RELEASE MEASURES****In case of spill or leak:**

Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Ventilate the area. Eliminate all ignition sources. Avoid generation of vapors. Contain and collect spillage with non-combustible absorbent material such as sodium bicarbonate, sodium carbonate, calcium carbonate, clean sand or non-acidic clay and then wet down (dampen) the mixture with water. DO NOT USE peat moss. DO NOT USE vermiculite. Sweep or scoop up using non-sparking tools and place into suitable properly labeled containers for prompt disposal. The sweepings should be wetted down further with water. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Consult a regulatory specialist to determine appropriate provincial 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.

Prevent product contamination.

Keep away from heat, sparks and flames.

Do not taste or swallow.

Do not get in eyes, on skin, or on clothing.

Avoid breathing vapor or mist.

Keep container tightly closed and away from combustible materials.

Use only with adequate ventilation.

Wash thoroughly after handling.

Emptied container retains vapor and product residue.

Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.  
Do not reuse container as it may retain hazardous product residue.

**Storage****General information on storage conditions:**

Outside or detached storage is preferred. Store out of direct sunlight in a cool well-ventilated place. Store away from combustibles and materials to avoid. Refer also to National Fire Protection Association (NFPA) Code 400, Hazardous Materials Code.

**Storage stability – Remarks:**

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

**Storage incompatibility – General:**

Strong acids

Strong bases

Strong oxidizing agents

Reducing agents

Accelerators

Friedel - Crafts reaction catalyst

transition metal salts

metal ions

Rust, copper, and brass are not compatible with methyl ethyl ketone peroxide. 316 stainless steel, glass, polyethylene, polytetrafluoroethylene and polypropylene are preferred materials for contact with methylethyl ketone peroxide.

For all Organic Peroxides, compatible materials of contact are stainless steel 304 or 316 (preferred), high-density polyethylene (HDPE), polytetrafluoroethylene or glass linings.

**Temperature tolerance – Do not store above:**

100 °F (38 °C)

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Airborne Exposure Guidelines:****2-Butanone, peroxide (1338-23-4)**

US. ACGIH Threshold Limit Values

Ceiling Limit Value: 0.2 ppm

**2,4-Pentandiol, 2-methyl- (107-41-5)**

US. ACGIH Threshold Limit Values

Ceiling Limit Value: 25 ppm

**LUPEROX® DDM-9**

**2-Butanone (78-93-3)**

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 200 ppm  
 Short Term Exposure Limit (STEL): 300 ppm

**Hydrogen peroxide (H2O2) (7722-84-1)**

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 1 ppm

**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.

**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. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. 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.

**Skin protection:**

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

**Eye protection:**

Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	none
<b>Physical state:</b>	liquid
<b>Form:</b>	oily
<b>Odor:</b>	sweet
<b>Odour Threshold:</b>	Not determined
<b>pH:</b>	No data available
<b>Density:</b>	1.0077 g/cm <sup>3</sup> 68 °F (20 °C)

<b>Specific Gravity (Relative density):</b>	1.0088 68 °F (20 °C)
<b>Vapor pressure:</b>	5.20 mmHg 66 °F (19 °C)
<b>Vapor density:</b>	No data available
<b>Boiling point/boiling range:</b>	Decomposes before boiling. Rate of decomposition increases with rising temperature.
<b>Freezing point:</b>	No data available
<b>Evaporation rate:</b>	no data available
<b>Solubility in water:</b>	slightly soluble
<b>Refractive index:</b>	1.4356
<b>Viscosity, dynamic:</b>	17.30 mPa.s 68 °F (20 °C)
<b>Self-Accelerating Decomposition Temperature (SADT):</b>	167 °F (75 °C) 45 gallon container
<b>Active oxygen content:</b>	8.7 - 9.0 %

## 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 Strong bases Strong oxidizing agents Accelerators Reducing agents Friedel - Crafts reaction catalyst transition metal salts metal ions Rust Copper Brass For all Organic Peroxides, compatible materials of contact are stainless steel 304 or 316 (preferred), high-density polyethylene (HDPE), polytetrafluoroethylene or glass linings.

### 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:

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

**11. TOXICOLOGICAL INFORMATION**

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

Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)

**Acute toxicity****Oral:**

No more than slightly toxic. (rat) LD50 > 3,200 mg/kg.

**Dermal:**

Practically nontoxic. (guinea pig) LD0 18,900 mg/kg.

**Inhalation:**

Practically nontoxic. (rat) 6 h LC0 > 5.3 mg/l.

**Skin Irritation:**

Slightly irritating. (guinea pig)

Non-irritating. (rabbit) Irritation Index: 0 / 8. (4 h)

**Eye Irritation:**

Non-irritating. (rabbit) Irritation Index: 0 / 110.

**Sensitization:**

No data available.

**Skin Sensitization:**

Repeated skin exposure. (guinea pig) No skin allergy was observed

**Repeated dose toxicity**

Subchronic dietary administration to rat and dog / affected organ(s): liver / signs: increased organ weight

Repeated oral administration to rat / affected organ(s): kidney, liver / signs: clinical chemistry changes, changes in organ weights, hyaline droplet nephropathy

**Carcinogenicity**

No data available.

**Genotoxicity****Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

No data available.

**Developmental toxicity**

Reproductive/Developmental Effects Screening Assay. oral (rat) / No birth defects were observed.

**Reproductive effects**

Reproductive/Developmental Effects Screening Assay. oral (rat) / No toxicity to reproduction.

**Human experience**

Skin contact:

No skin allergy or irritation was observed.. (studied using human volunteers)

**Data for 2-Butanone, peroxide (1338-23-4)****Acute toxicity****Oral:**

Moderately toxic. (rat) LD50 = 1,017 mg/kg. (35 - 39 %) (In solution in Dimethyl phthalate)

Moderately toxic. (rat) LD50 = 356 - 397 mg/kg. active ingredient

**Dermal:**

Slightly toxic. (rabbit) LD50 = 4,000 mg/kg. (35 - 39 %) (In solution in Dimethyl phthalate)

**Inhalation:**

Practically nontoxic. (rat) 4 h LC50 = 17 mg/l. (35 - 39 %) (In solution in Dimethyl phthalate)

**Skin Irritation:**

Moderately irritating. (rabbit) Irritation Index: 4.5/8.0. (4 h)

**Eye Irritation:**

Corrosive. (rabbit) (33 - 39 %) (In solution in Dimethyl phthalate)

**Sensitization:**

No data available.

**Skin Sensitization:**

Not a skin sensitizer. Guinea pig maximization test. (guinea pig) No skin allergy was observed (40 %) (In solution in Dimethyl phthalate)

**Repeated dose toxicity**

Repeated Oral administration to rat / affected organ(s): stomach, liver / signs: Irritation of the gastric mucosa, increased organ weight

Subchronic Dermal administration to rat and mouse / affected organ(s): skin / signs: severe damage / No adverse systemic effects reported.

**Carcinogenicity**

No data available.

**Genotoxicity****Assessment in Vitro:**

Genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

No genetic changes were observed in laboratory tests using: mice

**Developmental toxicity**

Exposure during pregnancy. oral (rat) / No birth defects were observed.

**Reproductive effects**

Reproduction test. oral (rat) / No toxicity to reproduction.

**Human experience****Skin contact:**

Skin: No skin allergy was observed. (studied using human volunteers)

Skin: Skin allergy was observed. Isolated case reports after exposure to a mixture containing this substance.



**LUPEROX® DDM-9****Human experience****Eye contact:**

Eyes: Pain, tearing, sensitivity to light, irritation. Mist and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used. (based on reports of occupational exposure to workers) (severity of effects depends on extent of exposure)

Eyes: Pain, causes severe burns. (accidental exposure to concentrated solutions) (based on reports of occupational exposure to workers) (severity of effects depends on extent of exposure)

**Human experience****Ingestion:**

Esophagus: Severe irritation, burns. (accidental exposure to concentrated solutions)

**Data for 2,4-Pentanediol, 2-methyl- (107-41-5)****Acute toxicity****Oral:**

Slightly toxic. (rat, mouse, rabbit, guinea pig) LD50 = 2,800 - 4,700 mg/kg. signs: GI tract irritation, central nervous system depression

**Dermal:**

Practically nontoxic. (rat) LD50 > 5,000 mg/kg.

Slightly toxic to practically nontoxic. (rabbit) LD50 > 1,840 - 12,300 mg/kg.

**Inhalation:**

No deaths observed. (rat) 8 h LC0 >= 0.34 mg/l (70 ppm) (saturated vapor)

**Skin Irritation:**

Practically non-irritating. (rabbit) Irritation Index: 0.4 / 8. (4 h)

**Eye Irritation:**

Moderately irritating. (rabbit) Irritation Index: 15-25 / 110.

**Sensitization:**

No data available.

**Skin Sensitization:**

Repeated skin exposure. (guinea pig) No skin allergy was observed

**Repeated dose toxicity**

Repeated dietary administration to rat / affected organ(s): kidney, liver, stomach / signs: Irritation of the gastric mucosa / No significant impairment of function.

Repeated inhalation administration to rat / affected organ(s): upper respiratory tract / Local irritation (Aerosol)

**Carcinogenicity**

No data available.

**Genotoxicity****Assessment in Vitro:**

No genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

No data available.

**Developmental toxicity**

Exposure during pregnancy. oral (rat) / No birth defects were observed. (delays in development, at doses that produce effects in mothers)

**Reproductive effects**

Reproductive/Developmental Effects Screening Assay. oral (rat) / No toxicity to reproduction. At high dose : Effects on offspring / (increased mortality in the offspring, decreased growth rate)

**Human experience****Inhalation:**

Discomfort. (severity of effects depends on extent of exposure) (studied using human volunteers)

**Human experience****Skin contact:**

No skin allergy was observed. (studied using human volunteers)

Local irritation, redness, swelling. (subjects with dermatitis or eczema)

Central nervous system depression. (severity of effects depends on extent of exposure)

**Human experience****Eye contact:**

Discomfort, slightly irritating. (liquid or aerosol) (studied using human volunteers) (severity of effects depends on extent of exposure)

**Data for 2-Butanone (78-93-3)****Acute toxicity****Oral:**

No more than slightly toxic. (rat) LD50 = 2,700 - 5,600 mg/kg.

**Dermal:**

Practically nontoxic. (rabbit) LD50 = 5,000 - 13,000 mg/kg.

**Inhalation:**

Practically nontoxic. (rat) 4 h LC50 = 34.5 mg/l (11700 ppm) .

**Skin Irritation:**

Moderately irritating. (rabbit)

**Eye Irritation:**

Moderately irritating. (rabbit) Draize Test 21/110. (4 h)

**Sensitization:**

No data available.

**Skin Sensitization:**

No data available.

**Repeated dose toxicity**

Subchronic inhalation administration to rat / affected organ(s): liver / signs: blood chemistry changes, changes in organ weights

Repeated inhalation administration to rat, mouse, cat, chicken / no nervous system injuries

**LUPEROX® DDM-9****Carcinogenicity**

No data available.

**Genotoxicity****Assessment in Vitro:**No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells  
Both positive and equivocal responses have been reported in tests using: yeast**Assessment in Vivo:**

No genetic changes were observed in laboratory tests using: animals

**Developmental toxicity**

Exposure during pregnancy. inhalation (mouse) / No birth defects were observed. (skeletal variations, delays in development)

Exposure during pregnancy. inhalation (rat) / No birth defects were observed. (at doses that produce effects in mothers, delays in development)

**Reproductive effects**

Reproduction Test. drinking water (rat) / No toxicity to reproduction / (similar material)

**Other information**

Aspiration hazard

**Human experience****Inhalation:**

Upper respiratory tract: irritation. (vapor)

Central nervous system: drowsiness, dizziness. Exposure to other materials makes the association questionable. (based on reports of occupational exposure to workers)

Nervous system: altered reflexes, changes in motor activity. Exposure to other materials makes the association questionable. (based on reports of occupational exposure to workers)

**Human experience****Skin contact:**

Skin: No skin allergy was observed. (studied using human volunteers)

Skin: dermatitis, cracking. Has a degreasing effect on the skin. (repeated or prolonged exposure)

**Human experience****Eye contact:**

Eyes: irritating. (vapor)

**Data for Generic hydrogen peroxide (<10%) (7722-84-1)****Acute toxicity****Oral:**

Practically nontoxic. (rat) LD50 &gt; 5,000 mg/kg . (10 %) (as aqueous solution)

**Dermal:**

LD50 - No data available.

**Inhalation:**

No deaths observed. (rat) 4 h LC0 &gt; 0.17 mg/l. (100 %) (saturated vapor)

Toxic. (mouse) 1 h Acute toxicity estimate between 2 - 3 mg/l. (100 %) signs: lung effects, irritation

(aerosol)

Toxic. (rat) 4 h LC50 2 mg/l. (100 %) (aerosol)

**Skin Irritation:**

Non-irritating. (rabbit) (3 - 10 %) (aqueous solution)

**Eye Irritation:**

Non-irritating. (rabbit) (3 %) (aqueous solution)

Slightly irritating. (rabbit) (5 %) aqueous solution

Slightly to moderately irritating. (rabbit) (6 %) aqueous solution

Slightly to moderately irritating. (rabbit) (8 %) aqueous solution

Severely irritating. (rabbit) (10 %) aqueous solution

**Sensitization:**

No data available.

**Skin Sensitization:**

No data available.

**Repeated dose toxicity**

Repeated drinking water administration to rat and mouse / affected organ(s): Gastro-intestinal tract / signs: irritation

Repeated inhalation administration to rat and mouse / affected organ(s): nose / signs: irritation

**Carcinogenicity**

Chronic drinking water administration to rat and mouse / affected organ(s): Gastro-intestinal tract / Increased incidence of tumors was reported.

Classified by the International Agency for Research on Cancer as: Group 3: Unclassifiable as to carcinogenicity in humans.

**Genotoxicity**

**Assessment in Vitro:**

Genetic changes were observed in laboratory tests using: bacteria, animal cells

**Assessment in Vivo:**

Genetic changes were observed in a laboratory test using: mice

**Developmental toxicity**

No data available.

**Reproductive effects**

No data available.

**Human experience**

**Inhalation:**

Throat: irritation. (based on reports of occupational exposure to workers)

**Human experience**

**Skin contact:**

Skin: bleaching of hair. (based on reports of occupational exposure to workers)

**Human experience**

**Eye contact:**

Eye: irritating. (based on reports of occupational exposure to workers)

**Human experience**

**Ingestion:**

Gastro-intestinal tract: bloating, ulceration, burns. (accidental exposure to concentrated solutions)

Lung: accumulation of fluid in the lungs, death. (severity of effects depends on extent of exposure)

**12. ECOLOGICAL INFORMATION**

**Chemical Fate and Pathway**

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

**Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)**

**Biodegradation:**

Inherently biodegradable. (aerobic, 28 d) biodegradation 4 - 82 % / The 10 day time window criterion is not fulfilled.

**Theoretical Biological Oxygen Demand:**

Theoretical oxygen demand (ThOD) = 2,400 mg/g

**Bioaccumulation:**

BCF = 670 (without metabolism)

BCF = 1 - 40 (with metabolism)

BCF 5.2 - 31 (Carp)

**Octanol Water Partition Coefficient:**

log Pow > 4.1 (calculated)

**Data for 2-Butanone, peroxide (1338-23-4)**

**Biodegradation:**

Readily biodegradable. (28 d) biodegradation 87 % / OECD guideline 301D (Closed bottle test)

**Behavior in Water Treatment Plant:**

Respiration inhibition of activated sludge 0.5 h EC50 = 16 mg/l (activated sludge)

**Octanol Water Partition Coefficient:**

log Pow = -0.43 (Does not bioaccumulate.)

**Data for 2,4-Pentanediol, 2-methyl- (107-41-5)**

**Biodegradation:**

Readily biodegradable. (28 d) biodegradation 81 %

**Octanol Water Partition Coefficient:**

log Pow = -0.14

**Data for 2-Butanone (78-93-3)**

**Biodegradation:**

Readily biodegradable. (20 d) biodegradation 89 %

**Photodegradation:**Half-life direct photolysis: = 6.9 d  
(is rapidly degraded in air by OH radicals.)**Mobility and Distribution in the Environment:**Evaporation / Half-life 27.1 h  
It is slightly adsorbed in soils and sediments. /**Data for Generic hydrogen peroxide (<10%) (7722-84-1)****Biodegradation:**

Readily biodegradable. (0.02 d) 99 %

**Octanol Water Partition Coefficient:**

log Pow = -1.57 (calculated)

**Ecotoxicology**

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

**Data for Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester (6846-50-0)****Aquatic toxicity data:**No more than moderately toxic. Pimephales promelas 96 h LC50 > 1.55 mg/l  
Slightly toxic. Oryzias latipes (Orange-red killifish) 96 h LC50 = 18 mg/l**Aquatic invertebrates:**

No more than moderately toxic. Daphnia magna (Water flea) 48 h LC50 &gt; 1.46 mg/l (Limit of water solubility.)

**Algae:**

Selenastrum capricornutum 72 h EC50 (growth rate) &gt; 7.49 mg/l (No effect up to the limit of solubility.)

**Chronic toxicity to aquatic invertebrates:**

Reproduction &amp; survival test / Daphnia magna (Water flea) 14 d EC50 (reproduction = 5.6 mg/l

Reproduction &amp; survival test / Daphnia magna (Water flea) 21 d EC50 (Immobilization = 12 mg/l

**Data for 2-Butanone, peroxide (1338-23-4)****Aquatic toxicity data:**

Slightly toxic. Poecilia reticulata (guppy) 96 h LC50 = 44.2 mg/l

**Aquatic invertebrates:**

Slightly toxic. Daphnia 48 h EC50 = 39 mg/l

**Algae:**

Moderately toxic. Algae 72 h EC50 = 3.2 mg/l

**Data for 2,4-Pentanediol, 2-methyl- (107-41-5)****Aquatic toxicity data:**Practically nontoxic. Oncorhynchus mykiss (rainbow trout) 96 h LC50 9,450 mg/l  
Practically nontoxic. Lepomis macrochirus (Bluegill sunfish) 96 h LC50 12,800 mg/l  
Practically nontoxic. Pimephales promelas (fathead minnow) 96 h LC50 8,690 - 10,700 mg/l  
Practically nontoxic. Gambusia affinis (Mosquito fish) 96 h LC50 8,510 mg/l  
Practically nontoxic. Carassius auratus (goldfish) 96 h LC50 12,000 mg/l

**LUPEROX® DDM-9**

Practically nontoxic. Channel catfish 96 h LC50 16,500 mg/l  
 Practically nontoxic. Bleak 96 h LC50 8,000 mg/l  
 Practically nontoxic. Silverside, tidewater 96 h LC50 10,000 mg/l

**Aquatic invertebrates:**

Practically nontoxic. Daphnia magna (Water flea) 48 h EC50 3,200 - 5,410 mg/l  
 Practically nontoxic. Crayfish 96 h EC50 16,500 mg/l  
 Practically nontoxic. Daphnia pulex (Water flea) 48 h EC50 3,300 mg/l  
 Practically nontoxic. Artemia salina 24 h EC50 5,900 mg/l

**Algae:**

Practically nontoxic. Selenastrum capricornutum 72 h EC50 > 429 mg/l

**Microorganisms:**

Practically nontoxic. Bacteria 10 d NOEC 1,000 mg/l

**Data for 2-Butanone (78-93-3)**

**Aquatic toxicity data:**

Practically nontoxic. Carassius auratus (goldfish) 24 h LC50 = 2,400 mg/l  
 Practically nontoxic. Pimephales promelas (fathead minnow) 96 h LC50 = 3,220 mg/l  
 Practically nontoxic. Gambusia affinis (Mosquito fish) 96 h LC50 = 5,600 mg/l  
 Practically nontoxic. Lepomis macrochirus (Bluegill sunfish) 48 h LC50 = 5,640 mg/l  
 Practically nontoxic. Leuciscus idus (Golden orfe) LC50 > 1,000 mg/l

**Aquatic invertebrates:**

Practically nontoxic. Brine shrimp EC50 > 1,000 mg/l  
 Practically nontoxic. Daphnia magna (Water flea) 48 h EC50 = 5,091 mg/l

**Algae:**

Practically nontoxic. Scenedesmus quadricauda (Green algae) 7 d EC 3 >= 4,300 mg/l  
 Practically nontoxic. Blue-green algae 7 d EC 3 >= 1,200 mg/l

**Microorganisms:**

Pseudomonas putida 16 h EC 3 = 1,150 mg/l  
 Photobacterium phosphoreum 5 min EC50 = 5,100 mg/l

**Data for Generic hydrogen peroxide (<10%) (7722-84-1)**

**Aquatic toxicity data:**

Slightly toxic. Pimephales promelas (fathead minnow) 96 h LC50 = 16.4 mg/l

**Aquatic invertebrates:**

Moderately toxic. Daphnia pulex (Water flea) EC50 = 2.4 mg/l

**Algae:**

Selenastrum capricornutum (green algae) NOEC = 0.63 mg/l

**Microorganisms:**

Practically nontoxic. Activated sludge 0.5 h EC50 = 466 mg/l  
 Practically nontoxic. Activated sludge 3 h EC50 > 1,000 mg/l

**Chronic toxicity to aquatic invertebrates:**

Reproduction Test / Daphnia magna (Water flea) 21 d NOEC = 0.63 mg/l

**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, provincial and local regulations. Consult a regulatory specialist to determine appropriate provincial 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, provincial and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

**14. TRANSPORT INFORMATION**

**Canadian Transportation of Dangerous Good (TDG)**

UN Number : 3105  
 Proper shipping name : Organic peroxide type D, liquid  
 Technical name : (Methyl ethyl ketone peroxide(s), <=45%)  
 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 : (METHYL ETHYL KETONE PEROXIDE, <=45%)  
 Class : 5.2  
 Marine pollutant : no  
 Flash point : 203 °F (95 °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)	DSL	All components of this product are on the Canadian DSL.
Japan. Kashin-Hou Law List	ENCS (JP)	Does not conform
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
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



**Canada - Federal Regulations**

**Workplace Hazardous Materials Information System (WHMIS)**

C: Oxidizing material  
 D1B: Toxic material causing immediate and serious toxic effects  
 D2B: Toxic material causing other toxic effects

**Ingredient Disclosure List (IDL)**

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Butanone, peroxide	1338-23-4

2,4-Pentanediol, 2-methyl-

2-Butanone

Hydrogen peroxide (H2O2)

**WHMIS Regulated Carcinogens (IARC, ACGIH Listed):**

**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:**

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>Rating</u>
Hydrogen peroxide (H2O2)	7722-84-1	Group A3 (Confirmed animal carcinogen with unknown relevance to humans.)

**National Pollution Release Inventory (NPRI)**

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Butanone	78-93-3

**16. OTHER INFORMATION**

**HMIS ratings:**

Health:	3 (SERIOUS HAZARD)
Fire:	2 (MODERATE HAZARD)
Reactivity:	3 (SERIOUS HAZARD)

**Miscellaneous:**

Other information: Rust, copper, and brass are not compatible with methyl ethyl ketone peroxide. 316 stainless steel, glass, polyethylene, polytetrafluoroethylene and polypropylene are preferred materials for contact with methylethyl ketone peroxide.

**Latest Revision(s):**

Reference number: 000000034127  
 Date of Revision: 08/02/2013  
 Date Printed: 08/02/2013

PREPARED BY: TECHNICAL DEPARTMENT

**LUPEROX® DDM-9**

---

PHONE NUMBER OF PREPARER: (800) 567-5726  
PREPARATION DATE: 08/02/2013

LUPEROX® is a registered trademark of Arkema Inc.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

THE INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED TO BE DEPENDABLE AND IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS, AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE AND THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, ARKEMA CANADA INC. MAKES NO WARRANTY EXPRESSED OR IMPLIED, WITH RESPECT TO COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE. THE INFORMATION PROVIDED HEREIN RELATES ONLY TO THE SPECIFIC PRODUCT DESIGNATED AND MAY NOT BE VALID WHERE SUCH PRODUCT IS USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS.