LUPEROX® HP101XLP

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Functional Additives

Customer Service Telephone Number: (800) 331-7654
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(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® HP101XLP
Synonyms: Dialkyl peroxide
Molecular formula: Complex Mixture
Chemical family: Organic peroxide - dialkyl peroxides
Product use: cross-linking agent

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: off-white, to, light brown
Physical state: solid
Form: powder
Odor: mint-like

***Classification of the substance or mixture:**
Organic peroxides, Type E, H242
Skin irritation, Category 2, H315
Skin sensitisation, Category 1, H317
Reproductive toxicity, Category 2, H361
Chronic aquatic toxicity, Category 2, H411

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labelling

Hazard pictograms:

Signal word: **Warning**

Hazard statements:

H242 : Heating may cause a fire.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H361 : Suspected of damaging fertility or the unborn child.
H411 : Toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements:

Organic peroxide.
Hazardous decomposition may occur.
May form combustible dust concentrations in air.

Precautionary statements:

Prevention:
P201 : Obtain special instructions before use.
P202 : Do not handle until all safety precautions have been read and understood.
P210 : Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P220 : Keep/Store away from clothing/ combustible materials.
P234 : Keep only in original container.
P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 : Wash skin thoroughly after handling.
P272 : Contaminated work clothing should not be allowed out of the workplace.
P273 : Avoid release to the environment.
P280 : Wear protective gloves or eye protection or face protection.
P281 : Use personal protective equipment as required.

Response:
P302 + P352 : IF ON SKIN: Wash with plenty of soap and water.
P308 + P313 : IF exposed or concerned: Get medical advice/ attention.
P333 + P313 : If skin irritation or rash occurs: Get medical advice/ attention.
P362 : Take off contaminated clothing and wash before reuse.
P391 : Collect spillage.

Storage:
P405 : Store locked up.
P410 : Protect from sunlight.
P411 + P235 : Maximum storage temperature is specified on label and in section 7 of SDS. Keep cool.
P420 : Store away from other materials.

Disposal:
P501 : Dispose of contents or container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)	78-63-7	>= 42 - <= 46 %	H227, H242, H315
Carbonic acid calcium salt (1:1)	471-34-1	>= 20 - < 25 %	Not classified

Silica gel, pptd., cryst.-free	112926-00-8	>= 20 - < 25 %	Not classified
Proprietary inert filler	Proprietary*	>= 1 - < 5 %	H302, H312, H332, H315, H319, H317, H400, H410
1,2-Dioxane, 3,3,6,6-tetramethyl-	22431-89-6	>= 1 - < 5 %	H242, H226, H335, H319, H315
Proprietary by-product	Proprietary*	>= 0.1 - < 1 %	H225, H304, H336, H400, H410
Proprietary additive	Proprietary*	>= 0.1 - < 1 %	H315, H319, H317, H335, H400, H410
Phenol, 2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methyl-	119-47-1	>= 0.1 - < 1 %	H361, H413

*The specific chemical identity is withheld because it is trade secret information of Arkema Inc.

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

Inhalation:
If inhaled, remove victim to fresh air.

Skin:
In case of contact, immediately flush skin with soap and plenty of water. Get medical attention. Wash clothing before reuse. Remove contaminated clothing and shoes. 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.

4.2. Most important symptoms/effects, acute and delayed:

For most important symptoms and effects (acute and delayed), see Section 2 (Hazard Statements and Supplemental Information if applicable) and Section 11 (Toxicology Information) of this SDS.

4.3. Indication of immediate medical attention and special treatment needed, if necessary:

Unless otherwise noted in Notes to Physician, no specific treatment noted; treat symptomatically.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):
Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Extinguishing media (unsuitable):
High volume water jet

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).

Further firefighting advice:
Do not use a solid stream of water.
A solid stream of water can cause a dust explosion.
Fight fire with large amounts of water from a safe distance.
Cool closed containers exposed to fire with water spray.
Closed containers of this material may explode when subjected to heat from surrounding fire.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.
Do not allow run-off from fire fighting to enter drains or water courses.
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
Dust clouds generated during handling and/or storage can form explosive mixtures with air. Dust explosion characteristics vary with the particle size, particle shape, moisture content, contaminants, and other variables.
Note: Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to free-fall or to be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.
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.
When burned, the following hazardous products of combustion can occur:
Carbon oxides
Hazardous organic compounds

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, Emergency procedures, Methods and materials for containment/clean-up:
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 dust formation and dispersal of dust in the air. Wet down (dampen) the spilled material with water. 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. Implement workplace practices such that dusts are not allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. 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.

Protective equipment:
Appropriate personal protective equipment is set forth in Section 8.

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.
Do not taste or swallow.
Avoid contact with skin, eyes and clothing.
Avoid breathing dust.
Keep away from heat, sparks and flames.
No smoking.
Use only with adequate ventilation.
Wash thoroughly after handling.
Prevent product contamination.
Keep container tightly closed and away from combustible materials.
Keep only in the original container.
Avoid creating dust in handling, transfer or clean up.
Prevent dust accumulation.
Implement routine housekeeping practices to ensure that dusts do not accumulate on surfaces.
Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.
Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
Container hazardous when empty.
Follow label warnings even after container is emptied.
RESIDUAL DUSTS MAY EXPLODE ON IGNITION.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
Do not reuse container as it may retain hazardous product residue.
Improper disposal or reuse of this container may be dangerous and/or illegal.
Emptied container retains product residue.

Storage

General information on storage conditions:
Keep in a dry, cool place. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Segregated or detached storage is preferred. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. Store out of direct sunlight in a cool well-ventilated place. Store in original container. Keep container closed when not in use. Store in upright position only. Store away from combustibles and materials to avoid. Refer also to National Fire Protection Association (NFPA) Code 400, Hazardous Materials Code. Static electricity may accumulate when transferring material. All metal and groundable storage containers, including but not limited to drums, cylinders, Returnable Intermodal Bulk Containers (RIBCs) and Class C Flexible Intermodal Bulk Containers (FIBCs) must be bonded and grounded during filling and emptying operations. Observe all federal, state and local regulations and National Fire Protection Association (NFPA) Codes, which pertain to the specific local conditions of storage and use, including NFPA 654.

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 oxidizing agents
Strong acids
Reducing agents
Accelerators
Friedel - Crafts reaction catalyst
Brass
Copper
Iron
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:

Carbonic acid calcium salt (1:1) (471-34-1)

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Form:	Respirable fraction.
PEL:	5 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Form:	Total dust
PEL:	15 mg/m3

Silica gel, pptd., cryst.-free (112926-00-8)

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time weighted average	20millions of particles per cubic foot of air

US. OSHA Table Z-3 (29 CFR 1910.1000)

Time weighted average	0.8 mg/m3
Remarks:	The exposure limit is calculated from the equation, 80/(%SiO2), using a value of 100% SiO2. Lower values of % SiO2 will give higher exposure limits.

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

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.

Check that all dust control equipment such as local exhaust ventilation, material transport systems, and air-material separation devices involved in handling this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Isolation devices may be appropriate to prevent propagation from one unit to another. Ensure that dust-handling systems are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Consult ACGIH ventilation manual, NFPA Standard 91 and NFPA Standard 654 for design of exhaust system and safe handling.

Respiratory protection:
Avoid breathing dust. 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. Respiratory protection programs must comply with 29 CFR § 1910.134.

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. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse.

Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

Eye protection:
Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	off-white, to, light brown
Physical state:	solid
Form:	powder
Odor:	mint-like
Odor threshold:	No data available
Flash point	The flashpoint of this product is greater than the Self Acceleration Decomposition Temperature (SADT).
Auto-ignition temperature:	No data available.
Lower flammable limit (LFL):	No data available
Upper flammable limit (UFL):	No data available
pH:	No data available
Density:	No data available
Specific Gravity (Relative density):	No data available
Vapor pressure:	No data available.
Vapor density:	No data available.
Boiling point/boiling range:	Decomposes before boiling. Rate of decomposition increases with rising temperature.
Melting point/range:	No data available
Freezing point:	No data available
Evaporation rate:	No data available
Solubility in water:	insoluble

Viscosity, dynamic:	No data available
Oil/water partition coefficient:	No data available.
Self-Accelerating Decomposition Temperature (SADT):	estimated 180 °F (82 °C) (Method: Heat Accumulation Storage Test)
Thermal decomposition:	No data available
Active oxygen content:	4.68 - 5.01 %
Flammability:	See GHS Classification in Section 2 if applicable

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.

Hazardous reactions:
Hazardous polymerization does not occur.

Materials to avoid:
Strong acids
Strong oxidizing agents
Reducing agents
Accelerators
Friedel - Crafts reaction catalyst
Brass
Copper
Iron
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:

Temperatures at or above 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
Hazardous organic compounds

11. TOXICOLOGICAL INFORMATION

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

Data for LUPEROX® HP101XLP

Acute toxicity

Oral:
Acute toxicity estimate > 5,000 mg/kg.

Dermal:
Acute toxicity estimate > 5,000 mg/kg.

Inhalation:
4 h Acute toxicity estimate > 10 mg/l. (dust/mist)

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

Acute toxicity

Oral:
No deaths occurred. (rat) LD0 > 2,000 mg/kg.

Dermal:
May be harmful in contact with skin. (rabbit) LD50 = 4,100 mg/kg.

Skin Irritation:
Causes skin irritation. (rabbit) (4 h)

Eye Irritation:
Causes mild eye irritation. (rabbit)

Skin Sensitization:
Not a sensitizer. Guinea pig maximization test. No skin allergy was observed.

Repeated dose toxicity
Subchronic oral administration to rat / No adverse systemic effects reported.

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

Genotoxicity

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

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in a laboratory test using: mice

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

Data for Carbonic acid calcium salt (1:1) (471-34-1)

Acute toxicity

Oral:
No deaths occurred. (rat) LD0 > 2,000 mg/kg.

Dermal:
No deaths occurred. (rat) LD0 > 2,000 mg/kg.

Inhalation:
No deaths occurred. (rat) 4 h LC0 > 3 mg/l. (dust/mist, Maximum concentration technically possible)

Skin Irritation:
Not irritating. (rabbit) (4 h)

Eye Irritation:
Causes mild eye irritation. (rabbit)

Skin Sensitization:
Not a sensitizer. LLNA: Local Lymph Node Assay. (mouse) No skin allergy was observed.

Repeated dose toxicity
Repeated oral administration to rat, mouse / No adverse systemic effects reported.

Genotoxicity

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

Developmental toxicity
Exposure during pregnancy. Oral (sheep) / bone effects in lambs (at doses that produce effects in mothers, blood chemistry changes)
Exposure during pregnancy. Oral (rat) / No birth defects were observed.

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

Human experience
General:
Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin.

Human experience
Inhalation:

Upper respiratory tract: Local irritation, coughing. (dust) (severity of effects depends on extent of exposure)

Human experience
Ingestion:
Kidney: failure, weakness, nausea. (effects of excessive exposure)

Data for Silica gel, pptd., cryst.-free (112926-00-8)

Acute toxicity

Oral:
Practically nontoxic. (rat) LD0 > 5,000 mg/kg.

Dermal:
Practically nontoxic. (rabbit) LD0 > 5,000 mg/kg.

Inhalation:
No deaths occurred. (rat) 4 h LC0 >= 2.08 mg/l. (dust/mist)

Skin Irritation:
Practically non-irritating. (rabbit) (4 h)

Eye Irritation:
Causes mild eye irritation. (rabbit)

Skin Sensitization:
Not a sensitizer. Guinea pig maximization test. No skin allergy was observed.

Repeated dose toxicity
Repeated inhalation administration to rat / affected organ(s): lung, lymph node / signs: inflammation /
No adverse systemic effects reported. (Local effects, reversible)

Subchronic dietary administration to rat / No adverse systemic effects reported.

Carcinogenicity
Chronic dietary administration to rat and mouse / No increase in tumor incidence was reported.
Classified by the International Agency for Research on Cancer as: Group 3: Unclassifiable as to carcinogenicity in humans.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells, yeast

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in laboratory tests using: rats

Developmental toxicity
Exposure during pregnancy. oral (rat, rabbit, hamster, mouse) / No birth defects were observed.

Reproductive effects
Two-generation study. oral (rat) / No toxicity to reproduction.

Other information
Information given is based on data obtained from similar substances.

Human experience
Inhalation:
Respiratory system: No increase in tumor incidence was reported. No significant impairment of lung function. (based on reports of occupational exposure to workers)

Data for Proprietary inert filler (Proprietary)

Acute toxicity

Oral:
Harmful if swallowed. (rat) LD50 = 951 mg/kg.

Dermal:
Harmful in contact with skin. (guinea pig) LD50 > 1,000 mg/kg.

Inhalation:
Harmful if inhaled. (rat) 4 h LC50 > 4.2 mg/l. (dust/mist)

Skin Irritation:
Causes skin irritation. (guinea pig)

Eye Irritation:
Causes serious eye irritation. (rabbit)

Skin Sensitization:
May cause allergic skin reaction. Repeated skin exposure. (guinea pig) Skin allergy was observed. (depigmentation)

Repeated dose toxicity
Chronic dietary administration to rat and dog / affected organ(s): Kidney, Haematopoietic system / Local irritation

Carcinogenicity
Chronic dietary administration to rat, mouse / No increase in tumor incidence was reported.

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria

Both positive and negative responses for genetic changes were observed in laboratory tests using: animal cells

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in laboratory tests using: mice

An equivocal response has been reported in a test using: rats

Developmental toxicity
Exposure during pregnancy. dietary, dermal (rat) / No birth defects were observed.

Reproductive effects
Reproduction test. dietary (rat) / Did not cause damage to the reproductive organs. / (levels produced toxic effects in the mothers and offspring, increased mortality in the offspring, delays in development)

Human experience
Skin contact:
Skin: Skin allergy was observed. (repeated or prolonged exposure)

Data for 1,2-Dioxane, 3,3,6,6-tetramethyl- (22431-89-6)

Acute toxicity

Specific target organ toxicity - single exposure:
May cause respiratory irritation.

Skin Irritation:
Causes skin irritation. (estimate based on composition)

Eye Irritation:
Causes serious eye irritation. (estimate based on composition)

Other information
The information presented is from representative materials in this chemical class. The results may vary depending on the test substance.

Data for Phenol, 2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methyl- (119-47-1)

Acute toxicity

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

Dermal:
Practically nontoxic. (rabbit) LD50 > 10,000 mg/kg.

Skin Irritation:
Not irritating. (rabbit) (4 h)

Eye Irritation:
Causes mild eye irritation. (rabbit)

Skin Sensitization:
Not a sensitizer. LLNA: Local Lymph Node Assay. (mouse) No skin allergy was observed.

Repeated dose toxicity
Chronic dietary administration to rat / affected organ(s): testes / signs: changes in organ structure or function, changes in organ weights, atrophy

Carcinogenicity
Chronic dietary administration to rat / No increase in tumor incidence was reported.

Genotoxicity

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

Genotoxicity

Assessment in Vivo:
No genetic changes were observed in a laboratory test using: mice

Developmental toxicity
Reproductive/Developmental Effects Screening Assay. Oral (rat) / No birth defects were observed. (increased mortality in the offspring, at doses that produce effects in mothers)

Reproductive effects
Reproductive/Developmental Effects Screening Assay. Oral (rat) / Suspected of damaging fertility (testicular changes)

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
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)

Stability in water:
Half-life 2.7 h (@pH 4)

Half-life 2.7 h (@pH 7)

Half-life 2.8 h (@pH 9)

Biodegradation:
Not readily biodegradable. (60 d) biodegradation 0 %

Bioaccumulation:
512 - 539 (Fish)

Octanol Water Partition Coefficient:
log Pow: = 7.34

Data for Proprietary inert filler (Proprietary)

Biodegradation:
Not readily biodegradable. (35 d) biodegradation 52.9 %

Octanol Water Partition Coefficient:
log Pow: = 1.52, at 77 °F (25 °C)

Data for Proprietary by-product (Proprietary)

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 1.6 %

Octanol Water Partition Coefficient:
log Pow: = 4.9

Data for Proprietary additive (Proprietary)

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 2 %

Ecotoxicology
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)

Aquatic toxicity data:
No effect up to the limit of solubility. Oryzias latipes (Orange-red killifish) 96 h

Algae:
No effect up to the limit of solubility. Pseudokirchneriella subcapitata 72 h

Microorganisms:
No effect up to the limit of solubility. Activated sludge 3 h NOEC (Respiration inhibition) > 1,000 mg/l (nominal concentrations reported)

Chronic toxicity to aquatic invertebrates:
No effect up to the limit of solubility. Daphnia magna (Water flea) 21 d NOEC > 0.0065 mg/l

Chronic toxicity to aquatic plants:
No effect up to the limit of solubility. Pseudokirchneriella subcapitata 72 h NOEC > 0.236 mg/l

Data for Carbonic acid calcium salt (1:1) (471-34-1)

Aquatic toxicity data:
No effect up to the limit of solubility. Oncorhynchus mykiss (rainbow trout) 96 h LC50 > 100 mg/l (Nominal concentration, Water accommodated fraction was tested.)

Aquatic invertebrates:
No effect up to the limit of solubility. Daphnia magna (Water flea) 48 h EC50 > 100 mg/l (Nominal concentration, Water accommodated fraction was tested.)

Algae:
No effect up to the limit of solubility. Desmodesmus subspicatus (green algae) 72 h EC50 > 14 mg/l (Water accommodated fraction was tested.)

Microorganisms:
Respiration inhibition / Activated sludge 3 h EC50 > 1,000 mg/l

Chronic toxicity to aquatic plants:
No effect up to the limit of solubility. Desmodesmus subspicatus (green algae) 72 h NOEC = 14 mg/l (Water accommodated fraction was tested.)

Data for Silica gel, pptd., cryst.-free (112926-00-8)

Aquatic toxicity data:
No effect up to the limit of solubility. Brachydanio rerio (zebrafish) 96 h LC0 > 10,000 mg/l (nominal concentrations reported)

Aquatic invertebrates:
No effect up to the limit of solubility. Daphnia (water flea) 48 h EC50 > 5,000 mg/l (nominal concentrations reported)

Chronic toxicity to aquatic plants:
No effect up to the limit of solubility. Desmodesmus subspicatus (green algae) 72 h NOEC = 173 mg/l (Nominal concentration)

Data for Proprietary inert filler (Proprietary)

Aquatic toxicity data:
Very toxic. Danio rerio (zebra fish) 96 h LC50 > 0.3 - < 0.48 mg/l

Aquatic invertebrates:
Very toxic. Daphnia magna (Water flea) 48 h EC50 = 0.57 mg/l

Algae:
Toxic. Desmodesmus subspicatus (green algae) 72 h ErC50 = 9.3 mg/l

Chronic toxicity to aquatic invertebrates:
Very toxic. Daphnia magna (Water flea) 21 d NOEC = 0.05 mg/l

Data for Proprietary by-product (Proprietary)

Aquatic toxicity data:
Very toxic. Oncorhynchus mykiss (rainbow trout) 96 h LC50 = 0.58 mg/l

Aquatic invertebrates:
Toxic. Daphnia magna (Water flea) 48 h EC50 = 1.2 mg/l

Algae:
Toxic. Pseudokirchneriella subcapitata (green algae) 72 h ErC50 = 1.5 mg/l

Microorganisms:

Pseudomonas fluorescens 24 h EC0 > 1,000 mg/l

Chronic toxicity to aquatic invertebrates:
Toxic. Daphnia magna (Water flea) 21 d NOEC (Reproduction inhibition) = 0.16 mg/l

Data for Proprietary additive (Proprietary)

Aquatic toxicity data:
No effect up to the limit of solubility. Poecilia reticulata 96 h LC50 > 16 mg/l (Nominal concentration)

Aquatic invertebrates:
Very toxic. Daphnia magna (Water flea) 48 h EC50 = 0.74 mg/l

Algae:
Toxic. Chlorella pyrenoidosa 96 h EC50 = 1.1 mg/l (data for a similar material)

Microorganisms:
Respiration inhibition of activated sludge / 3 h EC50 = 1,428 mg/l

Chronic toxicity to fish:
No effect up to the limit of solubility. Danio rerio (zebra fish) 10 d NOEC = 0.32 mg/l (Nominal concentration)

Chronic toxicity to aquatic invertebrates:
Very toxic. Daphnia magna (Water flea) 21 d NOEC = 0.0032 mg/l (data for a similar material)

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Disposal via incineration is recommended. 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.

Take appropriate measures to prevent release to the environment.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	3108
Proper shipping name	:	Organic peroxide type E, solid
Technical name	:	(2,5-Dimethyl-2,5-di(tert-butylperoxy) hexane, <=77%)
Class	:	5.2
Marine pollutant	:	yes

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	3108

Proper shipping name	:	ORGANIC PEROXIDE TYPE E, SOLID
Technical name	:	(2,5-DIMETHYL-2,5-DI(TERT-BUTYLPEROXY) HEXANE, <=77%)
Class	:	5.2
Marine pollutant	:	yes

15. REGULATORY INFORMATION

Chemical Inventory Status

US. Toxic Substances Control Act	TSCA	The components of this product are all on the Active TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL
China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Does not conform
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	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:
Acute Health Hazard, Reactivity Hazard, Fire Hazard, Chronic Health Hazard

SARA Title III – Section 313 Toxic Chemicals:
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):

Chemical name	CAS-No.	Reportable quantity
Peroxide, bis(1,1-dimethylethyl)	110-05-4	100 lbs

United States – State Regulations

New Jersey Right to Know

Chemical name	CAS-No.
Carbonic acid calcium salt (1:1)	471-34-1
Silica gel, pptd., cryst.-free	112926-00-8

Pennsylvania Right to Know

Chemical name	CAS-No.
Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)	78-63-7
Carbonic acid calcium salt (1:1)	471-34-1
Silica gel, pptd., cryst.-free	112926-00-8
Proprietary inert filler	Proprietary

California Prop. 65
WARNING! This product contains a chemical known to the State of California to cause cancer.

Chemical name	CAS-No.
Quartz (SiO2)	14808-60-7

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H227	Combustible liquid.
H242	Heating may cause a fire.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Miscellaneous:

Other information:	Refer to National Fire Protection Association (NFPA) Code 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Latest Revision(s):

Reference number:	200008789
Date of Revision:	05/18/2021
Date Printed:	05/19/2021

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