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, 8:30 AM to 5:30 PM EST)

Emergency Information
Transportation:
CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)

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

Product Information
Product name: CATALYST 730 RED
Synonyms: blend of hydroperoxides and ketone peroxide
Molecular formula: Complex mixture
Chemical family: Organic peroxide - hydroperoxides, Organic peroxide - ketone peroxides
Product use: initiator/catalyst

2. HAZARDS IDENTIFICATION

Emergency Overview
Color: red
Physical state: liquid
Odor: Slightly aromatic, sweet, unpleasant

DANGER!
ORGANIC PEROXIDE.
HAZARDOUS DECOMPOSITION MAY OCCUR.
COMBUSTIBLE LIQUID AND VAPOR.
CAUSES EYE, SKIN AND DIGESTIVE TRACT BURNS.
MAY CAUSE BLINDNESS.
HARMFUL IF INHALED, SWALLOWED OR ABSORBED THROUGH SKIN.
CAUSES RESPIRATORY TRACT IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, DROWSINESS, LOSS OF CONSCIOUSNESS.

Potential Health Effects
Primary routes of exposure:
Inhalation and skin contact.

Signs and symptoms of acute exposure:
Vapor: Irritates the respiratory organs. Liquid: Corrosive to skin and eyes. Causes burns. Prolonged or repeated skin contact may cause allergic reactions in some individuals.

**Skin:**
Slightly toxic to moderately toxic. Corrosive. (based on components) Repeated or prolonged skin contact may cause allergic reactions in some individuals.

**Inhalation:**
Toxic. (based on components) Irritating. (vapor) Central nervous system effects.

**Eyes:**
Corrosive. (based on components)

**Ingestion:**
Moderately toxic. Severely irritating. (based on components) Central nervous system effects.

**Repeated exposure:**
Data for a component: (cumene) Classified by the International Agency for Research on Cancer as: Group 2B: Possibly carcinogenic to humans.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Wt/Wt</th>
<th>OSHA Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester</td>
<td>6846-50-0</td>
<td>&gt;= 30 - &lt; 60 %</td>
<td>N</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>&gt;= 10 - &lt; 30 %</td>
<td>Y</td>
</tr>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
<td>&gt;= 10 - &lt; 30 %</td>
<td>Y</td>
</tr>
<tr>
<td>2,4-Pentanediol, 2-methyl-</td>
<td>107-41-5</td>
<td>&gt;= 1 - &lt; 5 %</td>
<td>Y</td>
</tr>
<tr>
<td>Benzenemethanol, .alpha.,.alpha.-dimethyl-</td>
<td>617-94-7</td>
<td>&gt;= 1 - &lt; 5 %</td>
<td>Y</td>
</tr>
<tr>
<td>Benzene, (1-methylthyl)-</td>
<td>98-82-8</td>
<td>&gt;= 1 - &lt; 5 %</td>
<td>Y</td>
</tr>
<tr>
<td>Hydrogen peroxide (H2O2)</td>
<td>7722-84-1</td>
<td>&gt;= 0.1 - &lt; 1 %</td>
<td>Y</td>
</tr>
<tr>
<td>Benzene, ethyl-</td>
<td>100-41-4</td>
<td>&lt; 0.1 %</td>
<td>Y</td>
</tr>
</tbody>
</table>

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:**

Product code: 148000 Version 3.4 Issued on: 01/31/2014 Page: 2 / 19
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Call a Poison Control Center.

**Skin:**
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Call a Poison Control Center. 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. Call a Poison Control Center.

**Ingestion:**
If swallowed, DO NOT induce vomiting. Get medical attention immediately. Call a Poison Control Center. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

## 5. FIREFIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>165 °F (74 °C) (Setaflash closed cup)</td>
</tr>
<tr>
<td>Auto-ignition temperature:</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower flammable limit (LFL):</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper flammable limit (UFL):</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**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.
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.

**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
Hazardous organic compounds
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 vermiculite or peat moss. 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 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. Do not taste or swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Prevent product contamination. Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. 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 CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER. 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. 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. 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. Refer also to National Fire Protection Association (NFPA) Code 400, Hazardous Materials Code. 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 OSHA 29 CFR 1910.106 and NFPA 30, 70, 77, and 497.

Storage stability – Remarks:
Stable under recommended storage conditions. To maintain stability and active oxygen content, store between 10°C and 38°C.

Storage incompatibility – General:
Strong acids
Strong bases
Strong oxidizing agents
Reducing agents
Accelerators
Friedel - Crafts reaction catalyst
transition metal salts
metal ions
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:
2-Butanone, peroxide (1338-23-4)
US. ACGIH Threshold Limit Values
Ceiling Limit Value: 0.2 ppm

Hydroperoxide, 1-methyl-1-phenylethyl (80-15-9)
US. AIHA Workplace Environmental Exposure Level (WEEL) Guides
Time Weighted Average (TWA): 1 ppm (6 mg/m3)
Skin designation Remarks: Can be absorbed through the skin.
Remarks: Listed

2,4-Pentanediol, 2-methyl- (107-41-5)
US. ACGIH Threshold Limit Values
Ceiling Limit Value: 25 ppm
Benzene, (1-methylethyl)- (98-82-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 50 ppm

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

PEL: 50 ppm (245 mg/m3)

Skin designation
Remarks: Can be absorbed through the skin.

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.

Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:
Avoid breathing vapor or mist. 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. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. 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 a face shield, chemical goggles, and have eye flushing.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>red</td>
</tr>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Slightly aromatic, sweet, unpleasant</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity (Relative density)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>negligible</td>
</tr>
<tr>
<td>Self-Accelerating Decomposition Temperature (SADT):</td>
<td>&gt; 140 °F (&gt; 60 °C) (Method: Heat Accumulation Storage Test)</td>
</tr>
<tr>
<td>Active oxygen content</td>
<td>8.87 %</td>
</tr>
</tbody>
</table>

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
Reducing agents
Accelerators
Friedel - Crafts reaction catalyst
transition metal salts
metal ions
Copper
Brass
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. See Hazardous Decomposition Products below.

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
- Hazardous organic compounds

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.

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

**Genotoxicity**

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

**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)

Slightly toxic. (rabbit) LD50 = 1,400 - 1,560 mg/kg. active ingredient

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

Practically nontoxic. (rat) 4 h LC50 = 6.0 - 6.6 mg/l. (aerosol, active ingredient)

**Skin Irritation:**
Corrosive. (rabbit) (4 h) (33 %) (occluded exposure, In solution in Dimethyl phthalate)

**Eye Irritation:**
Corrosive. (rabbit) (33 - 39 %) (In solution in Dimethyl phthalate)

**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.
Genotoxicity

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

Genotoxicity

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

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:
Skin: No skin allergy was observed. (studied using human volunteers)
Skin allergy was observed. Isolated case reports after exposure to a mixture containing this substance.

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 Hydroperoxide, 1-methyl-1-phenylethyl (80-15-9)

Acute toxicity

Oral:
Slightly to moderately toxic. (rat) LD50 = 400 - 2,000 mg/kg.
Moderately toxic. (rat) LD50 = 382 mg/kg.

Dermal:
Highly toxic. (rabbit) LD50 = 130 mg/kg. (100 %)
Slightly toxic. (rabbit) LD50 = 1,500 mg/kg. (23 %)

Inhalation:
Toxic. (rat) 4 h LC50 = 1.3 mg/l (220 ppm). (vapor)
Skin Irritation:
Corrosive. (rabbit) (4 h)

Slightly irritating. (rabbit) (4 h) (7 %) (dilute solutions)

Eye Irritation:
Severely irritating, or even corrosive, to eyes. (rabbit) Irritation Index: 65/110. (10 %)

Slightly irritating. (rabbit) Irritation Index: 6/110. (1 %)

Repeated dose toxicity
Subchronic inhalation administration to rat / affected organ(s): upper respiratory tract / signs: breathing difficulties, irritation / Local irritation

Chronic dermal administration to mouse / affected organ(s): site of contact / signs: hair loss, irritation

Carcinogenicity
Chronic dermal administration to mouse / No increase in tumor incidence was reported.

Data for Benzenemethanol, \(\alpha,\alpha\)-dimethyl- (617-94-7)

Acute toxicity

Oral:
Slightly toxic. (rat) LD50 = 1,300 - 3,000 mg/kg.

Dermal:
Slightly toxic. (rabbit) LD50 = 4,300 mg/kg.

Inhalation:
Toxic. (rat) 1 h LC50 = 9.85 - 13.77 mg/l (14111 - 19727 ppm).

Toxic. (mouse) 1 h LC50 = 2.94 mg/l (4230 ppm).

Skin Irritation:
Moderately to severely irritating. (rabbit) (24 h)

Eye Irritation:
Moderately to severely irritating. (rabbit)

Repeated dose toxicity
Subchronic Inhalation administration to dog / affected organ(s): Eyes / signs: irritation

Subchronic Inhalation administration to rat / affected organ(s): Lungs, Upper respiratory tract / signs: inflammation, irritation

Subchronic Inhalation administration to rabbit / affected organ(s): Eyes / signs: irritation

Subchronic Inhalation administration to guinea pig / affected organ(s): Lungs / signs: inflammation

Genotoxicity

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

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

Human experience

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

Data for Benzene, (1-methylethyl)- (98-82-8)

Acute toxicity

Oral:
Slightly toxic. (rat) LD50 = 2,700 - 2,910 mg/kg.

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

Inhalation:
Practically nontoxic. (rat) 4 h LC50 = 30 mg/l.

Signs/effects reported after acute exposure. (mouse) 0.5 h RD50 approximately 10 mg/l. signs: respiratory depression, irritation

Skin Irritation:
Slightly to moderately irritating. (rabbit) Irritation Index: 1.84 - 3.7/8.0. (24 h)

Eye Irritation:
Practically non-irritating to slightly irritating. (rabbit) Irritation Index: 0.9 - 7.6/110.

Skin Sensitization:
Guinea pig maximization test. (guinea pig) No skin allergy was observed

Repeated dose toxicity

Chronic Oral administration to rat / affected organ(s): kidney / signs: increased organ weight

Subchronic Inhalation administration to rat / affected organ(s): blood, kidney, liver / signs: changes in organ structure or function / (vapour)

Subchronic inhalation administration to mouse / affected organ(s): liver / signs: changes in organ structure or function / (vapour)

Chronic Inhalation administration to guinea pig, dog, monkey / No adverse effects reported. (vapour)

Carcinogenicity

Chronic Inhalation administration to rat and mouse / affected organ(s): lung, lung, upper respiratory tract, upper respiratory tract, kidney, kidney / Increase in tumor incidence was reported. Increase in tumor incidence was reported.

Classified by the International Agency for Research on Cancer as: Group 2B: Possibly carcinogenic to humans.

Genotoxicity

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

Assessment in Vivo:
Generally, no genetic changes were observed in laboratory studies using: rats, mice

Developmental toxicity

Exposure during pregnancy. inhalation (rat, rabbit) / No birth defects were observed.

Reproductive effects

Repeated administration. inhalation (rat) / No toxicity to reproduction

Other information

Aspiration hazard

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)

Octanol Water Partition Coefficient:
log Pow < 0.3 (Does not bioaccumulate.)

Data for Hydroperoxide, 1-methyl-1-phenylethyl (80-15-9)

Biodegradation:
Not readily biodegradable. (28 d) biodegradation 20 %
Octanol Water Partition Coefficient:
log Pow = 1.6

Photodegradation:
Air reaction with OH radicals Half-life direct photolysis: 0.25 d

Mobility and Distribution in the Environment:
It is slightly adsorptive in soil and sediment. / Log Koc = 1.4

Data for Benzenemethanol, .alpha.,.alpha.-dimethyl- (617-94-7)
Octanol Water Partition Coefficient:
log Pow = -1.14

Data for Benzene, (1-methylethyl)- (98-82-8)
Biodegradation:
Biodegradable.

Biological Oxygen Demand:
20.0 d BOD = 70% ThOD (predominantly domestic sewage)

Photodegradation:
Water Direct photolytic degradation: 1.2 - 9.2 %

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 invertebrates:
No more than moderately toxic. Daphnia magna (Water flea) 48 h LC50 > 1.46 mg/l (Limit of water solubility.)

Algae:
Selenastrum capricornutum 72 h EC50 (growth rate) > 7.49 mg/l (No effect up to the limit of solubility.)

Chronic toxicity to aquatic invertebrates:
Reproduction & survival test / Daphnia magna (Water flea) 14 d EC50 (reproduction) = 5.6 mg/l
Reproduction & 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 (In solution in Dimethyl phthalate)

Aquatic invertebrates:
Slightly toxic. Daphnia 48 h EC50 = 39 mg/l (In solution in diisobutyl phthalate)

Algae:
Moderately toxic. Pseudokirchneriella subcapitata (green algae) 72 h ErC50 = 5.6 mg/l (In solution in Dimethyl phthalate)
Microorganisms:
Respiration inhibition / Activated sludge 30 min EC50 = 48 mg/l (In solution in Dimethyl phthalate)

Data for Hydroperoxide, 1-methyl-1-phenylethyl (80-15-9)

Aquatic toxicity data:
Slightly toxic. Leuciscus idus 48 h LC50 = 14 - 17 mg/l
Moderate toxic. Oncorhynchus mykiss 96 h LC50 = 3.9 mg/l

Aquatic invertebrates:
Slightly toxic. Daphnia magna (Water flea) 48 h EC50 = 18 mg/l

Algae:
Moderately toxic. Scenedesmus subspicatus 72 h EC50 (biomass) = 1.6 mg/l
Moderately toxic. Scenedesmus subspicatus 72 h EC50 (growth rate) = 3.1 mg/l

Data for Benzenemethanol, α,α-dimethyl- (617-94-7)

Aquatic invertebrates:
Practically nontoxic. Daphnia magna (Water flea) 48 h LC50 = 101 mg/l

Algae:
Practically nontoxic. Chlorella vulgaris (Fresh water algae) EC50 = 2,700 mg/l

Microorganisms:
Moderate toxic. Photobacterium phosphoreum EC50 = 1.49 mg/l

Data for Benzene, 1-methylethyl- (98-82-8)

Aquatic toxicity data:
Moderate toxic. Oncorhynchus mykiss (rainbow trout) 96 h LC50 = 2.7 - 4.8 mg/l
Moderate toxic. Cyprinodon variegatus (sheepshead minnow) 96 h LC50 = 4.7 mg/l
Moderate toxic. Poecilia reticulata (guppy) 96 h LC50 = 5.1 mg/l

Aquatic invertebrates:
Moderately to highly toxic. Daphnia magna (Water flea) 48 h EC(I)50 = 2.14 - 10.8 mg/l
Moderate toxic. Brine shrimp 48 h EC50 = 7.4 mg/l
Moderate toxic. Mysidopsis bahia 48 h EC50 = 1.5 - 1.6 mg/l

Algae:
Moderate toxic. Desmodesmus subspicatus (green algae) 72 h ErC50 = 2.01 – 3.86 mg/l
Moderate toxic. Pseudokirchneriella subcapitata (green algae) 72 h EC50 = 2.6 mg/l

Microorganisms:
Practically nontoxic. Respiration inhibition / Activated sludge 3 h EC0 > 2,000 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, 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)

<table>
<thead>
<tr>
<th>UN Number</th>
<th>3105</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>Organic peroxide type D, liquid</td>
</tr>
<tr>
<td>Technical name</td>
<td>(Methyl ethyl ketone peroxide(s), 13-31%, Cumyl hydroperoxide, 8-53%)</td>
</tr>
<tr>
<td>Class</td>
<td>5.2</td>
</tr>
<tr>
<td>Packaging group</td>
<td>II</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>no</td>
</tr>
<tr>
<td>Reportable quantity</td>
<td>10 lbs (Methyl ethyl ketone peroxide(s))</td>
</tr>
<tr>
<td></td>
<td>10 lbs (Cumyl hydroperoxide)</td>
</tr>
</tbody>
</table>

International Maritime Dangerous Goods Code (IMDG)

<table>
<thead>
<tr>
<th>UN Number</th>
<th>3105</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>ORGANIC PEROXIDE TYPE D, LIQUID</td>
</tr>
<tr>
<td>Technical name</td>
<td>(, 13-31%, CUMYL HYDROPEROXIDE, 8-53%)</td>
</tr>
<tr>
<td>Class</td>
<td>5.2</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>no</td>
</tr>
<tr>
<td>Flash point</td>
<td>165 °F (74 °C) Setaflash closed cup</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

Chemical Inventory Status

<table>
<thead>
<tr>
<th>EU. EINECS</th>
<th>EINECS</th>
<th>Does not conform</th>
</tr>
</thead>
<tbody>
<tr>
<td>US. Toxic Substances Control Act</td>
<td>TSCA</td>
<td>The components of this product are all on the TSCA Inventory.</td>
</tr>
<tr>
<td>Australia. Industrial Chemical (Notification and Assessment) Act</td>
<td>AICS</td>
<td>Does not conform</td>
</tr>
<tr>
<td>Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)</td>
<td>DSL</td>
<td>This product contains one or several components that are not on the Canadian DSL nor NDSL lists.</td>
</tr>
<tr>
<td>Japan. Kashin-Hou Law List</td>
<td>ENCS (JP)</td>
<td>Does not conform</td>
</tr>
</tbody>
</table>

Product code: 148000 Version 3.4 Issued on: 01/31/2014 Page: 16 / 19
United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>SARA Reportable Quantities</th>
<th>SARA Threshold Planning Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide (H2O2)</td>
<td>7722-84-1</td>
<td>1000 lbs</td>
<td>1000 lbs</td>
</tr>
</tbody>
</table>

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Fire Hazard, Reactivity Hazard, Chronic Health Hazard

SARA Title III – Section 313 Toxic Chemicals:
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>De minimis concentration</th>
<th>Reportable threshold:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
<td>1.0 %</td>
<td>10000 lbs (Otherwise used (non-manufacturing/processing))</td>
</tr>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
<td>1.0 %</td>
<td>25000 lbs (Manufacturing and processing)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
<td>5000 lbs</td>
</tr>
<tr>
<td>Ethanone, 1-phenyl-</td>
<td>98-86-2</td>
<td>5000 lbs</td>
</tr>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
<td>10 lbs</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
<td>10 lbs</td>
</tr>
<tr>
<td>2-Butanone</td>
<td>78-93-3</td>
<td>5000 lbs</td>
</tr>
</tbody>
</table>
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:
<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
<td>Group 2B (Possible carcinogen.)</td>
</tr>
</tbody>
</table>

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

New Jersey Right to Know

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
</tr>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
</tr>
<tr>
<td>2,4-Pentanediol, 2-methyl-</td>
<td>107-41-5</td>
</tr>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
</tr>
</tbody>
</table>

New Jersey Right to Know – Special Health Hazard Substance(s)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
</tr>
</tbody>
</table>

Pennsylvania Right to Know

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester</td>
<td>6846-50-0</td>
</tr>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
</tr>
<tr>
<td>Hydroperoxide, 1-methyl-1-phenylethyl</td>
<td>80-15-9</td>
</tr>
<tr>
<td>2,4-Pentanediol, 2-methyl-</td>
<td>107-41-5</td>
</tr>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
</tr>
</tbody>
</table>

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone, peroxide</td>
<td>1338-23-4</td>
</tr>
<tr>
<td>Benzene, (1-methylethyl)-</td>
<td>98-82-8</td>
</tr>
</tbody>
</table>
California Prop. 65
WARNING! This product contains a chemical known to the State of California to cause cancer.

Chemical Name                  CAS-No.
Benzene, (1-methylethyl)-     98-82-8
Benzene, ethyl-                100-41-4

16. OTHER INFORMATION

Miscellaneous:

Other information: Refer to National Fire Protection Association (NFPA) Codes 30, 70, 77, and 497 and OSHA 29 CFR 1910.106, for safe handling.

Latest Revision(s):
Revised Section(s): Update SADT
Reference number: 000000034141
Date of Revision: 01/31/2014
Date Printed: 01/31/2014

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