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SAFETY DATA SHEET

Issue Date: Dec 13, 1995  
SDS #: BRI162  
16:33:45

Revision Date: Sep 13, 2011  
Printed: Feb 19, 2014

Product #: 162      cis-3-OCTEN-1-OL

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Bedoukian Research, Inc.    Emergency Phone Numbers:  
21 Finance Drive    1-800-424-9300   Chemtrec (North  
America)  
Danbury, CT 06810-4133                                        1-703-527-3887   Chemtrec  
(International)  
UNITED STATES  
Phone: 1-203-830-4000   Email: [customerservice@bedoukian.com](mailto:customerservice@bedoukian.com)  
Fax:    1-203-830-4010   Website: <http://www.bedoukian.com>

Product Code: 162  
Product Name: cis-3-OCTEN-1-OL  
Uses: flavors and fragrances

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SECTION 2. HAZARDS IDENTIFICATION

HMIS HAZARD CLASSIFICATIONS  
HEALTH = 1      FLAMMABILITY = 2      REACTIVITY = 0      PROTECTION = B

LABEL PRECAUTIONARY STATEMENTS  
GHS CLASSIFICATION AND LABELLING  
The following determinations per the Globally Harmonized System of  
Classification and Labelling of Chemicals (GHS) have been made:  
GHS SIGNAL WORD  
No signal word is required for this material.  
GHS SYMBOLS  
No symbol is required for this material.  
GHS LABELING/HAZARD STATEMENTS  
No hazard statements are required for this material.  
GHS LABELING/PRECAUTIONARY STATEMENTS  
No precautionary statements are required for this material.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 20125-84-2  
FEMA #: 3467      COE #: 10296  
MF:       C8H16O  
EC NO: 243-533-6

Minimum Purity: 96.0%  
Additives: synthetic alpha tocopherol @ 0.10%  
SYNONYM(S)  
3-Octen-1-ol, (3Z)-  
Z-3-Octen-1-ol  
cis-3-Octenol

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#### SECTION 4. FIRST-AID MEASURES

INHALATION EXPOSURE: Remove to fresh air. Give oxygen and call a physician.  
EYE CONTACT: Flush with water for 15 min. Seek medical help if necessary.  
SKIN CONTACT: Wash area well with water. Seek medical help if necessary.  
INGESTION: Administer water and call a physician or poison control center immediately. Do not induce vomiting.

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#### SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA  
CO<sub>2</sub>, FOAM, DRY CHEMICAL  
SPECIAL FIRE FIGHTING PROCEDURES  
Use standard fire fighting procedures.  
UNUSUAL FIRE AND EXPLOSION HAZARDS:  
None.

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#### SECTION 6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED  
Standard absorbents can be used.  
WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

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#### SECTION 7. HANDLING AND STORAGE

HANDLING  
Observe all warnings and precautions listed for the product.  
Use in accordance with good manufacturing and industrial hygiene practices. Use product in a properly ventilated work area. Do not eat, drink or smoke while handling product.  
STORAGE  
Packaging: Glass, Plastic or Phenolic Lined Steel  
Store tightly sealed under inert gas in a cool, well-ventilated area.  
FIRE PROTECTION  
Keep away from heat, sparks, and open flame.

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#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Local exhaust preferred. General ventilation required.  
RESPIRATORY: Usually not required. Avoid inhaling concentrated vapors.  
SKIN: Avoid skin contact. Use chemical resistant gloves.  
EYES: Splash-proof safety glasses or goggles.

OTHER PROTECTIVE EQUIPMENT: Safety shower, eye wash

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid  
APPEARANCE: colorless liquid  
ODOR DESCRIPTION: powerful fresh melon with an earthy note  
BOILING POINT: 206.75 C (EPI 4.0)  
VAPOR PRESSURE : 0.0303 mmHg (20C, EPI 4.0)  
VAPOR DENSITY (Air = 1): > 1  
SPECIFIC GRAVITY @ 25C (water = 1): 0.8400:0.8500  
SOLUBILITY IN WATER: Insoluble in water; soluble in alcohol.  
FLASH POINT (CC): 180 F 82 C  
LOGP : 2.590

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## SECTION 10. STABILITY AND REACTIVITY

### INCOMPATIBILITIES

CONDITIONS TO AVOID: Presents no special reactivity hazard.

MATERIALS TO AVOID: Strong oxidizing agents

### HAZARDOUS COMBUSTION PRODUCTS

CO, CO<sub>2</sub>, water

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## SECTION 11. TOXICOLOGICAL INFORMATION

### ACUTE EFFECTS

Most likely route of entry is through the skin.

Full strength may be irritating to skin and eyes.

### IRRITATION DATA

Skin Rabbit: 100% mat'l applied at 0.5 ml per site. Reactions graded per Draize. Primary irritation index=4.71, therefore test mat'l is not a primary irritant. Result for similar mat'l z-5-Octenol.

### TOXICITY DATA

LD50 Dermal (rabbit) > 5 g/kg. Result for similar mat'l cis-3-Hexenol.

LD50 Oral (rat) > 5 g/kg. Result for similar mat'l z-5-Octenol.

### OTHER DATA

Dermal sensitization (Guinea Pig): Mat'l is not a sensitizer. Buehler method. Induction w/ 100% mat'l. Challenge at 1%, 3%, 10%; vehicle EtOH; no effects noted. Result for similar mat'l z-5-Octenol.

THRESHOLD LIMIT VALUE (TLV): Not established

OSHA PERMISSABLE EXPOSURE LIMIT (PEL): Not established

LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

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## SECTION 12. ECOLOGICAL INFORMATION

### GENERAL

Prevent contamination of soil, ground- and surface water.

### ECOTOXIC EFFECTS

Acute tox. LC50 (freshwater fathead minnow): 381 mg/l calculated LC50. Result for similar mat'l cis-3-Hexenol.

Biodegradation test (OECD 301B): 10mg/l readily and ultimately

biodegradable. 89.4% biodegradation after 28 days. Result for similar mat'l cis-3-Hexenol.  
Biodegradation test (OECD 301F): 100 mg/l readily biodegradable. 77% biodegradation after 28 days. 72% at end of 10-day window. Result for similar mat'l cis-3-Hexenol.

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SECTION 13. DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

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SECTION 14. TRANSPORT INFORMATION

	Class	Pack Group	Sub. Risk	UN No.
Road(U.S.-DOT):	not regulated.			
Air (IATA):	not regulated.			
Sea (IMDG):	not regulated.			

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SECTION 15. REGULATORY INFORMATION

REVIEWS, STANDARDS, AND REGULATIONS  
This chemical is listed on the following inventories:  
TSCA AICS CHINA DSL ECL EINECS(243-533-6) PICCS  
LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

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SECTION 16. OTHER INFORMATION

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY  
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SAFETY DATA SHEET

Issue Date: Dec 13, 1995  
SDS #: BRI461  
17:48:32

Revision Date: May 11, 2012  
Printed: May 16, 2013

Product #: 461 delta-DECALACTONE

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Bedoukian Research, Inc.    Emergency Phone Numbers:  
21 Finance Drive     1-800-424-9300 Chemtrec (North  
America)  
Danbury, CT 06810-4133     1-703-527-3887 Chemtrec  
(International)  
UNITED STATES  
Phone: 1-203-830-4000 Email: customerservice@bedoukian.com  
Fax: 1-203-830-4010 Website: <http://www.bedoukian.com>

Product Code: 461  
Product Name: delta-DECALACTONE  
Uses: flavors and fragrances

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SECTION 2. HAZARDS IDENTIFICATION

HMIS HAZARD CLASSIFICATIONS  
HEALTH = 1        FLAMMABILITY = 1        REACTIVITY = 0        PROTECTION = B

LABEL PRECAUTIONARY STATEMENTS  
GHS CLASSIFICATION AND LABELLING  
The following determinations per the Globally Harmonized System of  
Classification and Labelling of Chemicals (GHS) have been made:  
GHS SIGNAL WORD  
No signal word is required for this material.  
GHS SYMBOLS  
No symbol is required for this material.  
GHS LABELING/HAZARD STATEMENTS  
No hazard statements are required for this material.  
GHS LABELING/PRECAUTIONARY STATEMENTS  
No precautionary statements are required for this material.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 705-86-2  
FEMA #: 2361    COE #: 621  
MF: C10H18O2  
EC NO: 211-889-1  
Minimum Purity: 98.0% (sum of isomers)  
Additives: None

SYNONYM(S)  
2H-Pyran-2-one, tetrahydro-6-pentyl-  
5-Decanolide  
5-Hydroxydecanoic acid, delta-lactone  
5-Pentyl-5-pentanolide  
6-Pentyltetrahydro-2H-pyran-2-one  
Decan-5-olide  
Dihydrojasmin lactone

delta-Amyl-delta-valerolactone  
delta-Amylvalerolactone  
delta-Pentyl-delta-valerolactone  
delta-Pentylvalerolactone

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#### SECTION 4. FIRST-AID MEASURES

INHALATION EXPOSURE: Remove to fresh air. Give oxygen and call a physician.

EYE CONTACT: Flush with water for 15 min. Seek medical help if necessary.

SKIN CONTACT: Wash area well with water. Seek medical help if necessary.

INGESTION: Administer water and call a physician or poison control center immediately. Do not induce vomiting.

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#### SECTION 5. FIRE FIGHTING MEASURES

##### EXTINGUISHING MEDIA

CO<sub>2</sub>, FOAM, DRY CHEMICAL

##### SPECIAL FIRE FIGHTING PROCEDURES

Use standard fire fighting procedures.

##### UNUSUAL FIRE AND EXPLOSION HAZARDS:

None.

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#### SECTION 6. ACCIDENTAL RELEASE MEASURES

##### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Standard absorbents can be used.

WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

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#### SECTION 7. HANDLING AND STORAGE

##### HANDLING

Observe all warnings and precautions listed for the product.

Use in accordance with good manufacturing and industrial hygiene practices. Use product in a properly ventilated work area. Do not eat, drink or smoke while handling product.

##### STORAGE

Packaging: Glass, Plastic, Aluminum or Phenolic Lined Steel

Store tightly sealed under inert gas in a cool, well-ventilated area.

##### FIRE PROTECTION

Keep away from heat, sparks, and open flame.

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#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Local exhaust preferred. General ventilation required.

RESPIRATORY: Usually not required. Avoid inhaling concentrated vapors.

SKIN: Avoid skin contact. Use chemical resistant gloves.

EYES: Splash-proof safety glasses or goggles.

OTHER PROTECTIVE EQUIPMENT: Safety shower, eye wash

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid  
APPEARANCE: colorless liquid  
ODOR DESCRIPTION: creamy, coconut, peach-like aroma.  
BOILING POINT: 283.16 C (EPI 4.0)  
VAPOR PRESSURE : 0.00294 mmHg (20C, EPI 4.0)  
VAPOR DENSITY (Air = 1): > 1  
SPECIFIC GRAVITY @ 25C (water = 1): 0.9635:0.9710  
SOLUBILITY IN WATER: Insoluble in water; soluble in alcohol.  
FLASH POINT (CC): 230 F 110 C  
LOGP : 2.570

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SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES

CONDITIONS TO AVOID: Presents no special reactivity hazard.

MATERIALS TO AVOID: Strong oxidizing agents

HAZARDOUS COMBUSTION PRODUCTS

CO, CO2, water

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SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS

Most likely route of entry is through the skin.

Full strength may be irritating to skin and eyes.

RTECS NUMBERS

RTECS: (2H-Pyran-2-one, tetrahydro-6-pentyl-) UQ1355000

IRRITATION DATA

1% in petrolatum produced no irritation or sensitization in humans.

Eye Rabbit: irritant effects, 1.25% test mat'l, vehicle alcohol SDA 39C;  
mild vessel injection involving only conjunctivae. Eyes normal on day 3

of

observation.

TOXICITY DATA

LD50 Dermal (rabbit) > 5 g/kg.

LD50 Oral (rat) > 5 g/kg.

S. typhimurium strains TA97a, TA98, TA100, TA102, TA1535 with and without  
S9: No effects, dosed up to 5 mg/plate. Vehicle dimethyl sulfoxide.

THRESHOLD LIMIT VALUE (TLV): Not established

OSHA PERMISSABLE EXPOSURE LIMIT (PEL): Not established

LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

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SECTION 12. ECOLOGICAL INFORMATION

GENERAL

Prevent contamination of soil, ground- and surface water.

ECOTOXIC EFFECTS

Acute toxicity EC50 Freshwater Daphnia magna: 48 hours 50.7 mg/l 95%  
confidence interval of 44.7-57.5 mg/l.

Biodegradation test (OECD 301B): 10mg/l readily and ultimately biodegradable. 97.7% biodegradation after 28 days.

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SECTION 13. DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

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SECTION 14. TRANSPORT INFORMATION

Class	Pack Group	Sub. Risk	UN No.
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Road(U.S.-DOT):	not regulated.
Air (IATA):	not regulated.
Sea (IMDG):	not regulated.

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SECTION 15. REGULATORY INFORMATION

REVIEWS, STANDARDS, AND REGULATIONS

This chemical is listed on the following inventories:  
TSCA AICS CHINA DSL ECL EINECS(211-889-1) ENCS PICCS  
LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

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SECTION 16. OTHER INFORMATION

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED REGARDING ITS CORRECTNESS.

BEDOUKIAN RESEARCH INC. ("BRI") MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE WITH RESPECT TO THE INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

BRI'S SOLE AND EXCLUSIVE LIABILITY WITH RESPECT TO PRODUCTS PROVIDED TO BRI'S SATISFACTION TO BE DEFECTIVE OR NONCONFORMING SHALL BE THE REPLACEMENT OF SUCH PRODUCTS WITHOUT CHARGE OR REFUND OF THE PURCHASE PRICE UPON THE RETURN OF SUCH PRODUCTS IN ACCORDANCE WITH BRI'S INSTRUCTIONS. THIS REMEDY, IN THE MANNER PROVIDED HEREIN, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITIES OF BRI, WHETHER BASED ON CONTRACT, TORT OR OTHERWISE WITH RESPECT TO, OR ARISING OUT OF THE PRODUCTS. BRI SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, CONTINGENT OR SPECIAL DAMAGES.

SAFETY DATA SHEET

Issue Date: Dec 13, 1995  
SDS #: BRI460  
17:48:32

Revision Date: May 11, 2012  
Printed: May 16, 2013

Product #: 460            delta-NONALACTONE FCC



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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Bedoukian Research, Inc.  
21 Finance Drive  
America)  
Danbury, CT 06810-4133  
(International)  
UNITED STATES

Emergency Phone Numbers:  
1-800-424-9300 Chemtrec (North  
1-703-527-3887 Chemtrec

Phone: 1-203-830-4000 Email: customerservice@bedoukian.com  
Fax: 1-203-830-4010 Website: <http://www.bedoukian.com>

Product Code: 460  
Product Name: delta-NONALACTONE FCC  
Uses: flavors and fragrances

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SECTION 2. HAZARDS IDENTIFICATION

HMIS HAZARD CLASSIFICATIONS

HEALTH = 1 FLAMMABILITY = 1 REACTIVITY = 0 PROTECTION = B

LABEL PRECAUTIONARY STATEMENTS

GHS CLASSIFICATION AND LABELLING

The following determinations per the Globally Harmonized System of  
Classification and Labelling of Chemicals (GHS) have been made:

GHS SIGNAL WORD

No signal word is required for this material.

GHS SYMBOLS

No symbol is required for this material.

GHS LABELING/HAZARD STATEMENTS

No hazard statements are required for this material.

GHS LABELING/PRECAUTIONARY STATEMENTS

No precautionary statements are required for this material.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 3301-94-8  
FEMA #: 3356 COE #: 2194  
MF: C9H16O2  
EC NO: 221-974-5  
Minimum Purity: 98.0%  
Additives: None

SYNONYM(S)

2H-Pyran-2-one, 6-butyltetrahydro-  
5-Hydroxynonanoic acid, delta-lactone  
5-Nonanolide  
5-n-Butyl-d-valerolactone  
6-Butyltetrahydro-2H-pyran-2-one  
delta-Butyl-delta-valerolactone  
delta-Butylvalerolactone

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SECTION 4. FIRST-AID MEASURES

INHALATION EXPOSURE: Remove to fresh air. Give oxygen and call a physician.

EYE CONTACT: Flush with water for 15 min. Seek medical help if necessary.

SKIN CONTACT: Wash area well with water. Seek medical help if necessary.

INGESTION: Administer water and call a physician or poison control center immediately. Do not induce vomiting.

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#### SECTION 5. FIRE FIGHTING MEASURES

##### EXTINGUISHING MEDIA

CO2, FOAM, DRY CHEMICAL

##### SPECIAL FIRE FIGHTING PROCEDURES

Use standard fire fighting procedures.

##### UNUSUAL FIRE AND EXPLOSION HAZARDS:

None.

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#### SECTION 6. ACCIDENTAL RELEASE MEASURES

##### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Standard absorbents can be used.

WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

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#### SECTION 7. HANDLING AND STORAGE

##### HANDLING

Observe all warnings and precautions listed for the product.

Use in accordance with good manufacturing and industrial hygiene practices. Use product in a properly ventilated work area. Do not eat, drink or smoke while handling product.

##### STORAGE

Packaging: Glass, Plastic, Aluminum or Phenolic Lined Steel

Store tightly sealed under inert gas in a cool, well-ventilated area.

##### FIRE PROTECTION

Keep away from heat, sparks, and open flame.

---

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Local exhaust preferred. General ventilation required.

RESPIRATORY: Usually not required. Avoid inhaling concentrated vapors.

SKIN: Avoid skin contact. Use chemical resistant gloves.

EYES: Splash-proof safety glasses or goggles.

OTHER PROTECTIVE EQUIPMENT: Safety shower, eye wash

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#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

APPEARANCE: colorless to pale yellow liquid

ODOR DESCRIPTION: coconut, creamy character.

BOILING POINT: 267.02 C (EPI 4.0)

VAPOR PRESSURE : 0.0067 mmHg (20C, EPI 4.0)  
VAPOR DENSITY (Air = 1): > 1  
SPECIFIC GRAVITY @ 25C (water = 1): 0.9800:0.9860  
SOLUBILITY IN WATER: Insoluble in water; soluble in alcohol.  
FLASH POINT (CC): 230 F 110 C  
LOGP : 2.080

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## SECTION 10. STABILITY AND REACTIVITY

### INCOMPATIBILITIES

CONDITIONS TO AVOID: Presents no special reactivity hazard.

MATERIALS TO AVOID: Strong oxidizing agents

### HAZARDOUS COMBUSTION PRODUCTS

CO, CO<sub>2</sub>, water

---

## SECTION 11. TOXICOLOGICAL INFORMATION

### ACUTE EFFECTS

Most likely route of entry is through the skin.

Full strength may be irritating to skin and eyes.

### IRRITATION DATA

10% in petrolatum produced no irritation or sensitization in humans.

### TOXICITY DATA

LD50 Dermal (rabbit) > 5 g/kg. For similar delta-Decalactone.

LD50 Dermal (rabbit) > 5 g/kg. For similar delta-Octalactone.

LD50 Oral (rat) > 5 g/kg. For similar delta-Decalactone.

LD50 Oral (rat) > 5 g/kg. For similar delta-Octalactone.

S. typhimurium strains TA97a, TA98, TA100, TA102, TA1535 with and without S9: No effects, dosed up to 5 mg/plate. Vehicle dimethyl sulfoxide. For similar delta-Decalactone.

THRESHOLD LIMIT VALUE (TLV): Not established

OSHA PERMISSABLE EXPOSURE LIMIT (PEL): Not established

LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

---

## SECTION 12. ECOLOGICAL INFORMATION

### GENERAL

Prevent contamination of soil, ground- and surface water.

### ECOTOXIC EFFECTS

Acute toxicity EC50 Freshwater Daphnia magna: 48 hours 50.7 mg/l 95% confidence interval of 44.7-57.5 mg/l. For similar delta-Decalactone.

Biodegradation test (OECD 301B): 10 mg/l readily and ultimately biodegradable. 97.7% biodegradation after 28 days. For similar material delta-Decalactone.

---

## SECTION 13. DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Incineration or sanitary landfill in accordance with local, state, and federal regulations.

---

SECTION 14. TRANSPORT INFORMATION

	Class	Pack Group	Sub. Risk	UN No.
Road(U.S.-DOT):	not regulated.			
Air (IATA):	not regulated.			
Sea (IMDG):	not regulated.			

SECTION 15. REGULATORY INFORMATION

REVIEWS, STANDARDS, AND REGULATIONS

This chemical is listed on the following inventories:  
TSCA AICS CHINA DSL ECL EINECS(221-974-5) ENCS PICCS  
LISTED AS CARCINOGEN BY NTP, IARC, OR OSHA?: NO

SECTION 16. OTHER INFORMATION

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