

**SAFETY DATA SHEET****502451 AGRUMEN ALDEHYDE LIGHT**

Revision Date: 07-28-2015

Page 1 of 18

Version # 01

Print Date: 11-24-2015

**1. IDENTIFICATION**

<b>Product Description:</b>	<b>AGRUMEN ALDEHYDE LIGHT</b>
<b>CAS #</b>	MIXTURE
<b>Other means of identification</b>	
<b>Vigon Item #</b>	502451
<b>Recommended use</b>	Concentrated aromatic ingredient which may be used fragrance compounds according to legal and IFRA guidelines.
<b>Recommended restrictions</b>	For Manufacturing Use Only
<b>Company</b>	<b>24 Hour Emergency Response Information</b>
Vigon International, Inc.	INFOTRAC (ACCT# 78928);
127 Airport Road	1-800-535-5053 WITHIN THE U.S.A.
E. Stroudsburg, PA 18301	1-352-323-3500 OUTSIDE THE U.S.A.
For information call: 570-476-6300	
Web Site: www.vigon.com	

**2. HAZARD(S) IDENTIFICATION**

<b>Physical hazards</b>	Flammable liquids	Category 4
<b>Health hazards</b>	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Sensitization, skin	Category 1
	Aspiration hazard	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

**Label elements****Signal word** Danger**Hazard statement**

H227	Combustible liquid.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H315 + H320	Causes skin and eye irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 2 of 18

Version # 01

Print Date: 11-24-2015

#### Precautionary statement

##### Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing mist or vapor.
P264	Wash 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/eye protection/face protection.

##### Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use appropriate media to extinguish.
P391	Collect spillage.

##### Storage

P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

##### Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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#### Hazard(s) not otherwise classified (HNOC)

None known.

#### Supplemental information

43.55% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 46% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
LINALYL ACETATE	3,7- dimethylocta-1,6-dien-3-yl acetate (1)-1,5-dimethyl-1-vinyl hex-4-enyl acetate LINALOOL ACETATE	115-95-7	20 - < 30
CITRAL	2,6- OCTADIENAL, 3,7-DIMETHYL- 2,6- dimethyl octadien-2,6-al-8 3,7-DIMETHYL-2,6-OCTADIENAL 3,7- dimethylocta-2,6-dienal	5392-40-5	10 - < 20

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 3 of 18

Version # 01

Print Date: 11-24-2015

Chemical name	Common name and synonyms	CAS number	%
HYDROXYCITRONELLAL	7-HYDROXY-3,7-DIMETHYL-OCTANAL HYDROXYCITRONELLAL Octanal, 7-hydroxy-3,7-dimethyl- HYDROXY-CITRONELLAL	107-75-5	10 - < 20
CARVENE	DIPENTENE (+)-P-MENTHA-1,8-DIENE (R)-(+)-Limonene (R)-4-Isopropenyl-1-methyl-1-cyclohexene 1- methyl-4-prop-1-en-2-ylcyclohexene	5989-27-5	5 - < 10
METHYL NAPHTHYL KETONE	2-ACETYLNAPHTHALENE acetoneaphthone 1- naphthalen-2-ylethanone methyl 2-naphthyl ketone	93-08-3	5 - < 10
PINENE BETA	laevo-6,6-dimethyl-2-methylene bicyclo(3.1.1)heptane (-)-pin-2(10)-ene L-BETA-PINENE (1S,5S)-7,7- dimethyl-4-methylidenebicyclo[3.1.1]heptane Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-, (1S)- (-)-nopinene	18172-67-3	5 - < 10
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE	4-formyl-1,3-dimethylcyclohex-1-ene 2,4-DIMETHYL-3-CYCLOHEXEN-1-CARBOXALDEHYDE 3-Cyclohexene-1-carboxaldehyde, 2,4-dimethyl- DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (MIXED ISOMERS)	68039-49-6	1 - < 5
LINALOOL	2,6-DIMETHYL-2,7-OCTADIENE-6-OL 1,6-Octadien-3-ol, 3,7-dimethyl- 3,7-Dimethylocta-1,6-dien-3-ol LINALYL ALCOHOL	78-70-6	1 - < 5
PHENYL ETHYL ALCOHOL	BENZYL CARBINOL 2-Phenylethanol	60-12-8	1 - < 5
PINENE ALPHA	dextro,laevo-pin-2(3)-ene 2,6,6 - trimethyl bicyclo-3,1,1-2-heptene 4,7,7- trimethylbicyclo[3.1.1]hept-3-ene	80-56-8	1 - < 5
PINENE BETA	7,7-dimethyl-4-methylidenebicyclo[3.1.1]heptane (1)-6,6- dimethyl-2-methylene bicyclo(3.1.1)heptane	127-91-3	1 - < 5
CITRONELLOL	3,7-DIMETHYL-6-OCTEN-1-OL 6-Octen-1-ol, 3,7-dimethyl- 2,6- dimethyl-2-octen-8-ol	106-22-9	0.1 < 1

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 4 of 18

Version # 01

Print Date: 11-24-2015

Chemical name	Common name and synonyms	CAS number	%
DELTA-3-CARENE	3,7,7-TRIMETHYLBICYCLO(4.1.0)HEPT-3-ENE (±)-3- carene	13466-78-9	0.1 < 1
GERANIOL	3,7-DIMETHYL-2,6-OCTADIEN-1-OL (2E)-3,7- dimethylocta-2,6-dien-1-ol LEMONOL GERANYL ALCOHOL	106-24-1	0.1 < 1
Other components below reportable levels			5 - < 10

#### 4. FIRST-AID MEASURES

<b>Inhalation</b>	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.
<b>Eye contact</b>	Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.
<b>Ingestion</b>	Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
<b>Most important symptoms/effects, acute and delayed</b>	Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
<b>Indication of immediate medical attention and special treatment needed</b>	Not available.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

#### 5. FIRE-FIGHTING MEASURES

<b>Suitable extinguishing media</b>	Water spray, fog, CO <sub>2</sub> , dry chemical, or alcohol resistant foam.
<b>Unsuitable extinguishing media</b>	Do not use a solid water stream as it may scatter and spread fire.
<b>Specific hazards arising from the chemical</b>	Fire may produce irritating, corrosive and/or toxic gases.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.
<b>Specific methods</b>	Use water spray to cool unopened containers.
<b>General fire hazards</b>	Static charges generated by emptying package in or near flammable vapor may cause flash fire.



## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 5 of 18

Version # 01

Print Date: 11-24-2015

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

**Methods and materials for containment and cleaning up**

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

The product is immiscible with water and will spread on the water surface.

**Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.

**Small Spills:** Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

#### 7. HANDLING AND STORAGE

**Precautions for safe handling**

Do not handle or store near an open flame, heat or other sources of ignition. All equipment used when handling the product must be grounded. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling. Take precautionary measures against static discharges. Avoid breathing vapor.

**Conditions for safe storage, including any incompatibilities**

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure limits**

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
CITRAL (CAS 5392-40-5)	TWA	5 ppm	Inhalable fraction and vapor.
DELTA-3-CARENE (CAS 13466-78-9)	TWA	20 ppm	
PINENE ALPHA (CAS 80-56-8)	TWA	20 ppm	
PINENE BETA (CAS 127-91-3)	TWA	20 ppm	



## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 6 of 18

Version # 01

Print Date: 11-24-2015

#### US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
CARVENE (CAS 5989-27-5)	TWA	165.5 mg/m <sup>3</sup>
		30 ppm

**Biological limit values** No biological exposure limits noted for the ingredient(s).

#### Exposure guidelines

##### US ACGIH Threshold Limit Values: Skin designation

CITRAL (CAS 5392-40-5) Can be absorbed through the skin.

**Appropriate engineering controls** Use explosion-proof ventilation equipment to stay below exposure limits. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

#### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles). Face shield is recommended.

#### Skin protection

**Hand protection** Chemical resistant gloves.

**Other** Use of an impervious apron is recommended.

**Respiratory protection** Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Refer to Spec Sheet
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Refer to Spec Sheet
<b>Odor</b>	Characteristic.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	147.0 °F (63.9 °C) Closed Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 7 of 18

Version # 01

Print Date: 11-24-2015

#### Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density 0.93 at 20 °C (relation to density of water at 4 °C)

#### Solubility(ies)

Solubility (water) Insoluble

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

## 10. STABILITY AND REACTIVITY

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products if stored and handled as indicated.

## 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

**Inhalation** Prolonged inhalation may be harmful.

**Skin contact** Causes skin irritation. May cause an allergic skin reaction.

**Eye contact** Causes serious eye irritation.

**Ingestion** Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

**Symptoms related to the physical, chemical and toxicological characteristics** Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

#### Information on toxicological effects

**Acute toxicity** May be fatal if swallowed and enters airways. May cause an allergic skin reaction.

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 8 of 18

Version # 01

Print Date: 11-24-2015

Product	Species	Test Results
AGRUMEN ALDEHYDE LIGHT		
<b>Acute</b>		
<i>Dermal</i>		
		> 5000 mg/kg Calculation method
<i>Oral</i>		
		> 5000 mg/kg Calculation method
Components	Species	Test Results
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2500 mg/kg
<i>Oral</i>		
LD50	Rat	2500 mg/kg
CARVENE (CAS 5989-27-5)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	5 g/kg
<i>Oral</i>		
LD50	Rat	4400 mg/kg
CITRAL (CAS 5392-40-5)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2250 mg/kg
<i>Oral</i>		
LD50	Rat	4950 mg/kg
CITRONELLOL (CAS 106-22-9)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2650 mg/kg
<i>Oral</i>		
LD50	Rat	3450 mg/kg
DELTA-3-CARENE (CAS 13466-78-9)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	4800 mg/kg



## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 9 of 18

Version # 01

Print Date: 11-24-2015

Components	Species	Test Results
GERANIOL (CAS 106-24-1)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	3600 mg/kg
HYDROXYCITRONELLAL (CAS 107-75-5)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg OECD 402: limit
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg OECD 401: limit
LINALOOL (CAS 78-70-6)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2000 mg/kg
<i>Oral</i>		
LD50	Rat	2790 mg/kg
LINALYL ACETATE (CAS 115-95-7)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	14.55 g/kg Remarks: Behavioral:General anesthetic. Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.
METHYL NAPHTHYL KETONE (CAS 93-08-3)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	> 1985 mg/kg
PHENYL ETHYL ALCOHOL (CAS 60-12-8)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2500 mg/kg
<i>Oral</i>		
LD50	Rat	1610 mg/kg

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 10 of 18

Version # 01

Print Date: 11-24-2015

Components	Species	Test Results
PINENE ALPHA (CAS 80-56-8)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	3700 mg/kg Remarks: Brain and Coverings:Recordings from specific areas of CNS. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Other changes.
PINENE BETA (CAS 127-91-3)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	4700 mg/kg
PINENE BETA (CAS 18172-67-3)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
LD50	Rat	4700 mg/kg

\* Estimates for product may be based on additional component data not shown.

<b>Skin corrosion/irritation</b>	Causes skin irritation.
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

#### Carcinogenicity

##### ACGIH Carcinogens

CITRAL (CAS 5392-40-5)	A4 Not classifiable as a human carcinogen.
DELTA-3-CARENE (CAS 13466-78-9)	A4 Not classifiable as a human carcinogen.
PINENE ALPHA (CAS 80-56-8)	A4 Not classifiable as a human carcinogen.
PINENE BETA (CAS 127-91-3)	A4 Not classifiable as a human carcinogen.

##### IARC Monographs. Overall Evaluation of Carcinogenicity

CARVENE (CAS 5989-27-5)	3 Not classifiable as to carcinogenicity to humans.
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##### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 11 of 18

Version # 01

Print Date: 11-24-2015

<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	May be fatal if swallowed and enters airways.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.
<b>Further information</b>	This product is a mixture, which has not been tested as a whole. Please refer to derived hazard classification of the mixture.

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Toxic to aquatic life with long lasting effects. This product is a mixture, which has not been tested as a whole. Please refer to derived hazard classification of the mixture.
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Components	Species	Test Results
<b>2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)</b>		
<b>Aquatic</b>		
<i>Acute</i>		
Algae	EC50 Green algae ( <i>Desmodesmus subspicatus</i> )	31 mg/l, 72 hours (based on growth rate - nominal concentration - OECD 201)
Crustacea	EC50 <i>Daphnia magna</i>	22.4 mg/l, 48 hours (measured concentration - similar to OECD 202)
Fish	LC50 <i>Oncorhynchus mykiss</i> (reported as <i>Salmo gairdneri</i> )	7.5 mg/l, 96 hours (measured concentration - OECD 203)
<b>CARVENE (CAS 5989-27-5)</b>		
<b>Aquatic</b>		
Crustacea	EC50 Water flea ( <i>Daphnia pulex</i> )	69.6 mg/l, 48 hours
Fish	LC50 Fathead minnow ( <i>Pimephales promelas</i> )	0.619 - 0.796 mg/l, 96 hours
	Rainbow trout, donaldson trout ( <i>Oncorhynchus mykiss</i> )	35 mg/l, 4 days
Other	EC50 Activated Sludge	3.94 mg/l
<b>CITRAL (CAS 5392-40-5)</b>		
<i>Acute</i>		
Other	EC20 Activated sludge of a predominantly domestic sewage	68 mg/l, 0.5 hours OECD Guideline 209 aquatic

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 12 of 18

Version # 01

Print Date: 11-24-2015

Components			Species	Test Results
<b>Aquatic</b>				
Other	EC50		Bacterium	2100 mg/l, 0.5 hours DIN 38412 Part 27 (draft) aquatic - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
<i>Acute</i>				
Algae	EC50		Green algae ( <i>Chlamydomonas variabilis</i> )	103.8 mg/l, 72 hours DIN 38412 Part 9 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Crustacea	EC50		<i>Daphnia magna</i>	7 mg/l, 48 hours Directive 79/831/EEC static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Fish	LC50		Ide, silver or golden orfe ( <i>Leuciscus idus</i> )	4.6 - 10 mg/l, 96 hours DIN 38415 Part 15 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
CITRONELLOL (CAS 106-22-9)				
<b>Aquatic</b>				
<i>Acute</i>				
Algae	EC50		Algae	2.4 mg/l, 72 hours
Crustacea	EC50		<i>Daphnia</i>	17 mg/l, 48 hours
Fish	LC50		<i>Leuciscus idus</i> (Golden orfe)	10 - 22 mg/l, 96 hours
GERANIOL (CAS 106-24-1)				
Other	EC50		Activated sludge of a predominantly domestic sewage	70 mg/l, 0.5 hours
<b>Aquatic</b>				
Algae	EC50		Green algae ( <i>Desmodesmus subspicatus</i> )	13.1 mg/l, 72 hours
Crustacea	EC50		<i>Daphnia magna</i>	10.8 mg/l, 48 hours
Fish	LC50		<i>Danio rerio</i>	22 mg/l, 96 hours
			Fathead minnow ( <i>Pimephales promelas</i> )	2.7 - 3.8 mg/l, 96 hours

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 13 of 18

Version # 01

Print Date: 11-24-2015

Components	Species	Test Results
<b>LINALOOL (CAS 78-70-6)</b>		
Other	EC10	Activated sludge of a predominantly domestic sewage
		> 100 mg/l, 3 hours
<b>Aquatic</b>		
Algae	EC50	Green algae ( <i>Chlamydomonas variabilis</i> )
		88.3 mg/l, 96 hours DIN 38412 Part 9 static. The details of the toxic effect related to the nominal concentration.
Crustacea	EC50	Daphnia magna
		20 mg/l, 48 hours DIN 38412 Part 11 static. The details of the toxic effect related to the nominal concentration.
Fish	LC50	Ide, silver or golden orfe ( <i>Leuciscus idus</i> )
		22 - 46 mg/l, 96 hours DIN 38412 Part 15 static. The details of the toxic effect related to the nominal concentration.
	LC50-R	Fish
		27.8 mg/l, 96 hours
<b>METHYL NAPHTHYL KETONE (CAS 93-08-3)</b>		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	Danio rerio
		9.8 mg/l, 96 hours
<b>PINENE ALPHA (CAS 80-56-8)</b>		
<b>Aquatic</b>		
Crustacea	LC50	Daphnia magna
		41 mg/l, 48 hours
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> )
		0.28 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

**Biodegradability**

**Percent degradation (Aerobic biodegradation)**

GERANIOL

> 90 % OECD 301A (new version)(aerobic), activated sludge, domestic DOC reduction, Readily biodegradable (according to OECD criteria)

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**

CARVENE

4.232

LINALOOL

2.97, (OECD Guideline 107)

PHENYL ETHYL ALCOHOL

1.36

PINENE ALPHA

4.83

**Mobility in soil**

No data available.

**Other adverse effects**

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 14 of 18

Version # 01

Print Date: 11-24-2015

#### 13. DISPOSAL CONSIDERATIONS

<b>Disposal instructions</b>	Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	Not established.
<b>Waste from residues / unused products</b>	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

#### 14. TRANSPORT INFORMATION

<b>ADN</b>	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL,PINENE BETA)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9
<b>ADR</b>	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL,PINENE BETA)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9
<b>RID</b>	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL,PINENE BETA)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9
<b>DOT</b>	
<b>BULK</b>	
UN number	NA1993
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (PINENE BETA, CARVENE,CITRAL)
Hazard class	Combustible liq
Packing group	III

## SAFETY DATA SHEET

## 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 15 of 18

Version # 01

Print Date: 11-24-2015

**Environmental hazards**

Marine pollutant	Yes
Packaging exceptions	150
Packaging bulk	241
Labels required	None

**DOT****NON-BULK**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**IMDG**

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL,PINENE BETA)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Labels required	9
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

ADN; ADR; IMDG; RID



DOT BULK



## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

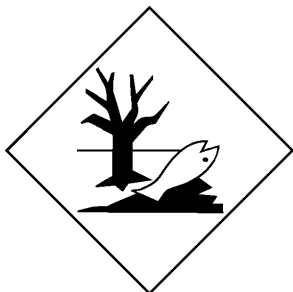
Revision Date: 07-28-2015

Page 16 of 18

Version # 01

Print Date: 11-24-2015

#### Marine pollutant



## 15. REGULATORY INFORMATION

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** No

**SARA 313 (TRI reporting)**  
Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**  
Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**  
Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.





## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

Revision Date: 07-28-2015

Page 17 of 18

Version # 01

Print Date: 11-24-2015

#### US state regulations

##### US. Massachusetts RTK - Substance List

PINENE ALPHA (CAS 80-56-8)

##### US. New Jersey Worker and Community Right-to-Know Act

CARVENE (CAS 5989-27-5)

PINENE ALPHA (CAS 80-56-8)

##### US. Pennsylvania Worker and Community Right-to-Know Law

PINENE ALPHA (CAS 80-56-8)

##### US. Rhode Island RTK

Not regulated.

##### US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

#### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

#### 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Issue date	11-24-2015
Revision date	07-28-2015
Version #	01
HMIS® ratings	Health: 2* Flammability: 2 Physical hazard: 0



## SAFETY DATA SHEET

### 502451 AGRUMEN ALDEHYDE LIGHT

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Revision Date: 07-28-2015

Page 18 of 18

Version # 01

Print Date: 11-24-2015

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#### **Disclaimer**

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