



## SAFETY DATA SHEET

### 500654 ROSE OXIDE RACEMIC

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#### 1. IDENTIFICATION

**Product Description:** ROSE OXIDE RACEMIC  
**CAS #** 16409-43-1  
**FEMA Number** 3236  
**Other means of identification**  
**Vigon Item #** 500654  
**Recommended use** Concentrated aromatic and flavor ingredient which may be used in flavor and fragrance compounds according to legal and IFRA or FEMA GRAS/FDA guidelines.  
**Recommended restrictions** For Manufacturing Use Only

#### Company

Vigon International, Inc.  
127 Airport Road  
E. Stroudsburg, PA 18301  
For information call: 570-476-6300  
Web Site: www.vigon.com

#### 24 Hour Emergency Response Information

INFOTRAC (ACCT# 78928);  
1-800-535-5053 WITHIN THE U.S.A.  
1-352-323-3500 OUTSIDE THE U.S.A.

#### **Manufacturer/Importer/Supplier/Distributor information**

##### **Manufacturer**

**Company name** Vigon International, Inc.  
**Address** 127 Airport Road  
E. Stroudsburg, PA 18301  
United States  
**Telephone** For information call: 570-476-6300  
**Website** www.vigon.com  
**E-mail** regulatory@vigon.com  
**Emergency phone number** INFOTRAC (ACCT# 78928);  
1-800-535-5053 WITHIN THE U.S.A.  
1-352-323-3500 OUTSIDE THE U.S.A.

#### 2. HAZARD(S) IDENTIFICATION

**Physical hazards** Flammable liquids Category 4  
**Health hazards** Acute toxicity, oral Category 5  
Skin corrosion/irritation Category 2  
Serious eye damage/eye irritation Category 2A  
Reproductive toxicity Category 2  
**Environmental hazards** Hazardous to the aquatic environment, acute hazard Category 3  
Hazardous to the aquatic environment, long-term hazard Category 3

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#### Label elements



#### Signal word

Warning

#### Hazard statement

H227	Combustible liquid.
H303	May be harmful if swallowed.
H315	Causes skin irritation.
H315 + H320	Causes skin and eye irritation.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

#### Precautionary statement

##### 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P264	Wash thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

##### Response

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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P332 + P313	If skin irritation 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.

##### Storage

P403	Store in a well-ventilated place.
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

100% of the substance consists of component(s) of unknown acute inhalation toxicity.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substances

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Chemical name	Common name and synonyms	CAS number	%
Tetrahydro-4-methyl-2-(2-methylpropenyl)-2H-pyran		16409-43-1	100

#### Additional components

Chemical name	Common name and synonyms	CAS number	%
2H-PYRAN, TETRAHYDRO-4-METHYL-2-(2-METHYL-1-PROPENYL)-, (2R,4S)-REL-		876-17-5	60 - 80
2H-PYRAN, TETRAHYDRO-4-METHYL-2-(2-METHYL-1-PROPENYL)-, (2R,4R)-REL-		876-18-6	10 - 30

#### 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>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
<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.



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#### 6. ACCIDENTAL RELEASE MEASURES

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

Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Keep unnecessary personnel away. 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**

Collect and dispose of spillage as indicated in section 13 of the SDS.

Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Prevent product from entering drains.

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. 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.

**Environmental precautions**

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

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#### 7. HANDLING AND STORAGE

**Precautions for safe handling**

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

**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.

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#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure limits**

This substance has no PEL, TLV, or other recommended exposure limit.

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Use explosion-proof ventilation equipment to stay below exposure limits.

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

**Eye/face protection**

Avoid contact with eyes.

**Skin protection**

**Hand protection**

Chemical resistant gloves.

**Other**

Use of an impervious apron is recommended. Chemical resistant gloves.

**Respiratory protection**

Chemical respirator with organic vapor cartridge and full facepiece.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

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**General hygiene considerations** Observe any medical surveillance requirements. When using do not smoke. Keep away from food and drink. 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.

### 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>	2.5
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	158 °F (70 °C) 12 mmHg
<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.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.51 hPa at 20 °C
<b>Vapor density</b>	Not available.
<b>Relative density</b>	0.87 g/cm <sup>3</sup> at 25 °C
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<b>Partition coefficient (n-octanol/water)</b>	3.1 at 20 °C
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	1.36 mPa·s at 25 °C dynamic 1.56 mm <sup>2</sup> /s at 25 °C kinematic
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Molecular formula</b>	C <sub>10</sub> H <sub>18</sub> O
<b>Molecular weight</b>	154.25 g/mol

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	154.25 g/mol
<b>Oxidizing properties</b>	Not oxidizing.
<b>Specific gravity</b>	0.87 at 25 °C

#### 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products if stored and handled as indicated.

#### 11. TOXICOLOGICAL INFORMATION

##### Information on likely routes of exposure

<b>Inhalation</b>	Knowledge about health hazard is incomplete.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes serious eye irritation. Causes mild eye irritation.
<b>Ingestion</b>	May be harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

##### Information on toxicological effects

**Acute toxicity** May be harmful if swallowed.

Product	Species	Test Results
Tetrahydro-4-methyl-2-(2-methylpropenyl)-2H-pyran (CAS 16409-43-1)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg (OECD Guideline 402) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
<i>Oral</i>		
LD50	Rat	> 2000 mg/kg (OECD Guideline 423) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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<b>Skin corrosion/irritation</b>	Causes skin irritation. Species: rabbit Result: Irritant. Method: OECD Guideline 404
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation. Species: rabbit Result: Irritant. Method: Draize test
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Due to partial or complete lack of data the classification is not possible.
<b>Skin sensitization</b>	Due to partial or complete lack of data the classification is not possible. Buehler test Species: guinea pig Result: Non-sensitizing. Method: similar to OECD guideline 406
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Carcinogenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	Not listed.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b>	Not listed.
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>	Not listed.
<b>Reproductive toxicity</b>	Suspected of damaging fertility or the unborn child.
<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

Product	Species	Test Results
Tetrahydro-4-methyl-2-(2-methylpropenyl)-2H-pyran (CAS 16409-43-1)		
<i>Acute</i>		
Other	EC20 Activated sludge of a predominantly domestic sewage	> 1000 mg/l, 3 hours OECD Guideline 209 static The details of the toxic effect relate to the nominal concentration. The statement of the toxic effect relates to the analytically determined concentration.

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Product	Species	Test Results
<b>Aquatic</b>		
<i>Acute</i>		
Algae	EC10 Green algae ( <i>Dunaliella bioculata</i> )	38.1 mg/l, 72 hours OECD Guideline 201 static
	EC50 Green algae ( <i>Desmodesmus subspicatus</i> )	79.7 mg/l, 72 hours OECD Guideline 201 static The statement of the toxic effect relates to the analytically determined concentration.
Crustacea	EC50 <i>Daphnia magna</i>	33.2 mg/l, 48 hours OECD Guideline 202, part 1 static The details of the toxic effect relate to the nominal concentration.
Fish	LC50 <i>Zebrafish (Brachydanio rerio)</i>	77.6 mg/l, 96 hours OECD Guideline 203 semistatic The statement of the toxic effect relates to the analytically determined concentration.

**Persistence and degradability**      Test method: OECD Guideline 301 F (aerobic)  
 Method of analysis: BOD of the ThOD  
 Degree of elimination: 79 % (28 d)  
 Evaluation: Readily biodegradable (according to OECD criteria).

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**  
 Tetrahydro-4-methyl-2-(2-methylpropenyl)-2H-pyran      3.1, at 20 °C

**Mobility in soil**      calculated Adsorption/water - soil  
 KOC: 652.7  
 log KOC: 2.81  
 calculated Volatility/water - air

**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.

### 13. DISPOSAL CONSIDERATIONS

**Disposal instructions**      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.

**Local disposal regulations**      Dispose in accordance with all applicable regulations.

**Hazardous waste code**      Not established.

**Waste from residues / unused products**      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).

**Contaminated packaging**      Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.





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#### 14. TRANSPORT INFORMATION

##### ADN

Not regulated as dangerous goods.

##### ADR

Not regulated as dangerous goods.

##### RID

Not regulated as dangerous goods.

##### DOT

##### BULK

UN number	NA1993
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (ROSE OXIDE)
Hazard class	Combustible liq
Packing group	III
Environmental hazards	
Marine pollutant	No
Packaging exceptions	150
Packaging bulk	241
Labels required	None

##### DOT

##### NON-BULK

Not regulated as dangerous goods.

##### IATA

Not regulated as dangerous goods.

##### IMDG

Not regulated as dangerous goods.

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#### 15. REGULATORY INFORMATION

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

##### Toxic Substances Control Act (TSCA)

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

Not regulated.

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

Not listed.

##### SARA 304 Emergency release notification

Not regulated.

##### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

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

###### SARA 302 Extremely hazardous substance

Not listed.



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**SARA 311/312 Hazardous chemical**

Yes

**Classified hazard categories**

Flammable (gases, aerosols, liquids, or solids)  
Skin corrosion or irritation  
Serious eye damage or eye irritation  
Reproductive toxicity

**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.

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

**Issue date** 11-23-2015  
**Revision date** 10-21-2020  
**Version #** 04  
**HMIS® ratings** Health: 2\*  
Flammability: 2  
Physical hazard: 0

**Disclaimer**

Vigon International, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, and disposal and should not be considered as a guarantee or quality specification. This product has not been evaluated for safe use in e-cigarettes or any vaping application where the product(s) is/are intentionally vaporized and inhaled. Vigon International, Inc. has performed no testing on these products in e-cig/vaping applications. It is the sole responsibility of the individual(s) purchasing this product to assess its' safety in the final application. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal, and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized sources such as distributors, manufacturers, and technical groups and is considered to be accurate to the best of Vigon's knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.



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**Revision information**

This document has undergone significant changes and should be reviewed in its entirety.