1. Identification

Product identifier  cis-2-HEXEN-1-OL

Other means of identification
- BRI Product Code: 166
- CAS number: 928-94-9
- FEMA number: 3924
- Synonyms: 2-Hexen-1-ol, (2Z)- Z-2-Hexenol

Recommended use  flavors and fragrances

Recommended restrictions  Not for use in Tobacco or Nicotine delivery device applications and/or products.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer  Bedoukian Research
  Address  6 Commerce Drive
  Danbury, CT 06810
  United States
  Telephone  1-203-830-4000
  Website  www.bedoukian.com
  E-mail  customerservice@bedoukian.com
  Contact person  Joseph Bania
  Emergency phone number  Chemtrec (North America) 1-800-424-9300
  Chemtrec (International) 1-703-527-3887

2. Hazard(s) identification

Physical hazards  Flammable liquids  Category 3

Health hazards  Not classified.

Environmental hazards  Not classified.

OSHA defined hazards  Not classified.

Label elements

Signal word  Warning

Hazard statement  Flammable liquid and vapor.

Precautionary statement


Response  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. In case of fire: Use appropriate media to extinguish.

Storage  Store in a well-ventilated place. Keep cool.

Disposal  Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)  None known.

Supplemental information  None.

3. Composition/information on ingredients

Substances
Material name: cis-2-HEXEN-1-OL

166    Version #: 02    Revision date: 01-March-2019    Issue date: 27-May-2015

SDS US

2 / 7

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### Chemical name | Common name and synonyms | CAS number | %
--- | --- | --- | ---
 cis-2-HEXEN-1-OL | 2-Hexen-1-ol, (2Z)-Z-2-Hexenol | 928-94-9 | 100

### Stabilizers

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>synthetic alpha tocopherol</td>
<td></td>
<td>10191-41-0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

**Composition comments**

Occupational Exposure Limits for stabilizers are listed in Section 8.

### 4. First-aid measures

#### Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

#### Skin contact

Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

#### Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

#### Ingestion

Rinse mouth. Get medical attention if symptoms occur.

#### Most important symptoms/effects, acute and delayed

Direct contact with eyes may cause temporary irritation.

#### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

#### General information

Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

### 5. Fire-fighting measures

#### Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

#### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

#### Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

#### Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

#### Fire fighting equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials.

#### Specific methods

Use only non-sparking tools.

#### General fire hazards

Flammable liquid and vapor.

### 6. Accidental release measures

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

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

#### Methods and materials for containment and cleaning up

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. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

#### Environmental precautions

Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling
Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Recommended Packaging: Glass, Plastic or Phenolic Lined Steel. Store tightly sealed under inert gas in a cool, well-ventilated area.

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
Explosion-proof general and local exhaust ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Hand protection
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other
Wear suitable protective clothing.

Respiratory protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

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.

9. Physical and chemical properties

Appearance
Physical state
Liquid.

Color
Colorless

Odor
 fresher than trans-2-hexenol.

Odor threshold
Not available.

pH
Not available.

Melting point/freezing point
Not available.

Initial boiling point and boiling range
314.6 °F (157 °C) Literature reference.

Flash point
130 °F (54 °C) Closed Cup

Evaporation rate
Not available.

Flammability (solid, gas)
Not applicable.

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
0.61 mmHg at 20°C; US EPA. 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.

Vapor density
3.5 Relative to air; air = 1

Relative density
Not available.
Solubility(ies)
   Solubility (water)  Not available.

Partition coefficient
                       EPA, Washington, DC, USA.

Auto-ignition temperature  Not available.
Decomposition temperature  Not available.
Viscosity  Not available.

Other information
   Density  0.845 - 0.853 g/cm3
   Explosive properties  Not explosive.
   Flammability class  Combustible II estimated
   Molecular formula  C6H12O
   Molecular weight  100.16
   Oxidizing properties  Not oxidizing.
   Specific gravity  0.845 - 0.853 at 25°C

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 are known.

11. Toxicological information
   Information on likely routes of exposure
      Inhalation  No adverse effects due to inhalation are expected.
      Skin contact  No adverse effects due to skin contact are expected.
      Eye contact  Direct contact with eyes may cause temporary irritation.
      Ingestion  Expected to be a low ingestion hazard.
   Symptoms related to the physical, chemical and toxicological characteristics
      Direct contact with eyes may cause temporary irritation.

   Information on toxicological effects
      Acute toxicity  Not available.
      Skin corrosion/irritation  Prolonged skin contact may cause temporary irritation.
      Serious eye damage/eye irritation  Direct contact with eyes may cause temporary irritation.
      Respiratory or skin sensitization
         Respiratory sensitization  Not a respiratory sensitizer.
         Skin sensitization  This product is not expected to cause skin sensitization.
      Germ cell mutagenicity  No data available to indicate product or any components present at greater than 0.1% are
                              mutagenic or genotoxic.
      Carcinogenicity  This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
                       IARC Monographs. Overall Evaluation of Carcinogenicity
                       Not listed.
                       OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
                       Not regulated.
                       US. National Toxicology Program (NTP) Report on Carcinogens
                       Not listed.
      Reproductive toxicity  This product is not expected to cause reproductive or developmental effects.
### 12. Ecological information

#### Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

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

#### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
</table>

#### 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.

### 13. Disposal considerations

#### Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. 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
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

#### Waste from residues / unused products
Dispose of in accordance with local regulations. 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.

### 14. Transport information

#### DOT
Not regulated as dangerous goods.

#### IATA
- **UN number**: UN1987
- **UN proper shipping name**: Alcohols, n.o.s. (CIS-2-HEXEN-1-OL)
- **Transport hazard class(es)**
  - Class: 3
  - Subsidiary risk: -
  - Packing group: III
  - Environmental hazards: No.
  - ERG Code: 3L
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
- **Other information**
  - Passenger and cargo aircraft: Allowed with restrictions.
  - Cargo aircraft only: Allowed with restrictions.

#### IMDG
- **UN number**: UN1987
- **UN proper shipping name**: ALCOHOLS, N.O.S. (CIS-2-HEXEN-1-OL)
- **Transport hazard class(es)**
  - Class: 3
  - Subsidiary risk: -
  - Packing group: III
  - Environmental hazards: No.
  - Marine pollutant: No.
  - EmS: F-E, S-D
- **Special precautions for user**: Read safety instructions, SDS and emergency procedures before handling.
Not established.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code IATA; IMDG

15. Regulatory information

US federal regulations

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

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 1910.1001-1050)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

<table>
<thead>
<tr>
<th>Hazard categories</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Delayed Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Pressure Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactivity Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

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.

International Inventories

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

*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 | 27-May-2015 |
| Revision date | 01-March-2019 |
| Version # | 02 |

**Disclaimer**

Bedoukian Research 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.

**Revision information**

Identification: Recommended restrictions
Physical and chemical properties: Oxidizing properties
Physical and chemical properties: Explosive properties