

# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>2-TRIDECENAL (HIGH TRANS) FCC</b>	
<b>Other means of identification</b>		
<b>BRI Product Code</b>	357	
<b>CAS number</b>	7774-82-5	
<b>FEMA number</b>	3082	
<b>Synonyms</b>	(* Alt. CAS #) CAS: 7069-41-2; (E)-Tridecen-2-al * (* Alt. EU#) EU: 230-362-7; (E)-tridecen-2-al * 2-Tridecenal * e-2-Tridecenal * trans-2-Tridecen-1-al * tridec-2-enal	
<b>Recommended use</b>	flavors and fragrances For Manufacturing Use Only	
<b>Recommended restrictions</b>	Not for use in Tobacco or Nicotine delivery device applications and/or products.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Manufacturer</b>		
<b>Company name</b>	Bedoukian Research	
<b>Address</b>	6 Commerce Drive Danbury, CT 06810 United States	
<b>Telephone</b>	1-203-830-4000	
<b>Website</b>	www.bedoukian.com	
<b>E-mail</b>	customerservice@bedoukian.com	
<b>Contact person</b>	Joseph Bania	
<b>Emergency phone number</b>	Chemtrec (North America)	1-800-424-9300
	Chemtrec (International)	1-703-527-3887

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1B
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Warning
<b>Hazard statement</b>	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.
<b>Precautionary statement</b>	
<b>Prevention</b>	Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves.
<b>Response</b>	If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.

**Supplemental information**

100% of the mixture consists of component(s) of unknown acute inhalation toxicity. 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. Contains 2-TRIDECENAL (HIGH TRANS) FCC. May produce an allergic reaction.

**3. Composition/information on ingredients****Substances**

Chemical name	Common name and synonyms	CAS number	%
2-TRIDECENAL (HIGH TRANS) FCC	(* Alt. CAS #) CAS: 7069-41-2; (E)-Tridecen-2-al (* Alt. EU#) EU: 230-362-7; (E)-tridecen-2-al 2-Tridecenal e-2-Tridecenal trans-2-Tridecen-1-al tridec-2-enal	7774-82-5	100

**Stabilizers**

Chemical name	Common name and synonyms	CAS number	%
synthetic alpha tocopherol		10191-41-0	0.5

\*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**

Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**

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

**Ingestion**

Rinse mouth. Get medical attention if symptoms occur.

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

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.

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

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**General information**

Wash contaminated clothing before reuse.

**5. Fire-fighting measures****Suitable extinguishing media**

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media**

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

**Specific hazards arising from the chemical**

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.

**Fire fighting equipment/instructions**

Move containers from fire area if you can do so without risk.

**Specific methods**

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

**General fire hazards**

No unusual fire or explosion hazards noted.

**6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. 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. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). 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. Avoid discharge into drains, water courses or onto the ground.

## Environmental precautions

## 7. Handling and storage

### Precautions for safe handling

Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Recommended Packaging: Glass, Aluminum 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

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. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

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

#### Eye/face protection

Face shield is recommended. Wear safety glasses with side shields (or goggles).

#### Skin protection

##### Hand protection

For prolonged or repeated skin contact use suitable protective gloves. Select suitable chemical resistant protective gloves (EN 374) with a protective index 6 (>480min permeation time).

##### Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Contaminated work clothing should not be allowed out of the workplace.

## 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Color

white to slightly yellow

#### Odor

powerful waxy, tangerine odor.

#### Odor threshold

Not available.

#### pH

Not available.

#### Melting point/freezing point

Not available.

#### Initial boiling point and boiling range

526.19 °F (274.55 °C) US EPA, 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.

#### Flash point

267 °F (131 °C) Closed Cup Bedoukian obtained value.

#### 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.

<b>Vapor pressure</b>	0.004 mmHg at 20°C; US EPA. 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.
<b>Vapor density</b>	6.8 Relative to air; air = 1
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	5.02 US EPA. 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	0.842 - 0.848 g/cm3
<b>Explosive properties</b>	Not explosive.
<b>Flammability class</b>	Combustible IIIB estimated
<b>Molecular formula</b>	C13H24O
<b>Molecular weight</b>	196.34
<b>Oxidizing properties</b>	Not oxidizing.
<b>Specific gravity</b>	0.842 - 0.848 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>	Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

<b>Toxicological information</b>	
2-TRIDECENAL (HIGH TRANS) FCC	500 - 2000 mg/kg OECD 474, In vivo Mouse Micronucleus Test. Vehicle Corn oil. Dose orally administered. Result for similar materials 2-Nonenal and 2-Dodecenal. Result: Not mutagenic. Species: Mouse Notes: RIFM

### Information on likely routes of exposure

<b>Inhalation</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Ingestion</b>	Expected to be a low ingestion hazard.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	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** Not known.

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
2-TRIDECENAL (HIGH TRANS) FCC (CAS 7774-82-5)		
<b>Acute</b>		
<b>Dermal</b>		
<i>Liquid</i>		
LD50	Guinea pig	> 5000 mg/kg

Product	Species	Test Results
<b>Oral</b> <i>Liquid</i> LD50	Mouse	> 5000 mg/kg
* Estimates for product may be based on additional component data not shown.		
<b>Skin corrosion/irritation</b>	Causes skin irritation.	
<b>Irritation Corrosion - Skin</b> 2-TRIDECENAL (HIGH TRANS) FCC	4 % Patch test, Vehicle Petrolatum. Result: No irritation observed. Species: Human Organ: Skin Notes: RIFM 5000 mg/kg LD50, Irritation evaluated on day 1 of an LD50 study, 10 animals evaluated. Moderate redness in 7+R629, severe redness in 2, pale skin in 1; moderate edema in 4, severe edema in 6. Scar formation in 10 at necropsy. Result: Irritation noted. Species: Rabbit Organ: Skin Notes: RIFM	
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.	
<b>Irritation Corrosion - Eye</b> 2-TRIDECENAL (HIGH TRANS) FCC	0.125 %, Irritation clear on day 7. Vehicle Ethanol SDA 39C. Result for similar material 2-Decenal. Result: Irritation noted. Species: Rabbit Organ: Eye Observation Period: 7 days Severity: mild Notes: RIFM	
<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>Skin sensitization</b> 2-TRIDECENAL (HIGH TRANS) FCC	4 % Patch test, Vehicle Petrolatum. Result: Not sensitizing. Species: Human Organ: Skin Notes: RIFM OECD 429, Calculated EC3: 3.8%. Vehicle 1:3 EtOH:DEP. Result: Sensitization noted. Species: Mouse	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Germ cell mutagenicity: Ames test</b> 2-TRIDECENAL (HIGH TRANS) FCC	< 5000 µg/plate, Strains TA 1535, TA 1537, TA 98, TA 100, and TA 102 with and without metabolic activation. Result for similar material 2-Dodecenal. Result: Not mutagenic. Species: Salmonella typhimurium	
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Not listed.		
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		
Not regulated.		
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>		
Not listed.		
<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>	Not an aspiration hazard.
<b>Further information</b>	May cause allergic respiratory and skin reactions.

## 12. Ecological information

<b>Ecotoxicity</b>	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.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	

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

2-TRIDECENAL (HIGH TRANS) FCC

5.02, US EPA. 2014. Estimation Programs Interface Suite™ for Microsoft® Windows, v 4.11. US EPA, Washington, DC, USA.

<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	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

<b>Disposal instructions</b>	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.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	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).
<b>Contaminated packaging</b>	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

<b>DOT</b>	Not regulated as dangerous goods.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.

<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not established.
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## 15. Regulatory information

<b>US federal regulations</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>	Not regulated.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>	Not listed.
<b>SARA 304 Emergency release notification</b>	Not regulated.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not regulated.

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

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
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.

## US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

## 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)	Yes
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Toxic Chemical Substances (TCS)	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** 21-May-2015

**Revision date** 06-April-2019

**Version #** 05

### 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

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