

# trans-2-Heptene

sc-258266

Material Safety Data Sheet



The Power to Question

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

trans-2-Heptene

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch

Within the US & Canada: 877-715-9305

Outside the US & Canada: +800 2436 2255

(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

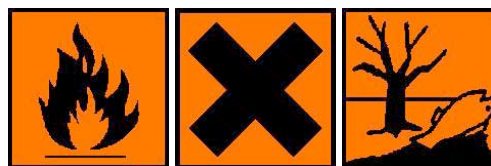
C7-H14, CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>CH=CHCH<sub>3</sub>, 2-heptylene

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	3	
Toxicity:	2	
Body Contact:	2	
Reactivity:	2	
Chronic:	2	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

HARMFUL - May cause lung damage if swallowed.

Highly flammable.

Vapours may cause drowsiness and dizziness.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

■ Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733).

■ Accidental ingestion of the material may be damaging to the health of the individual.

■ Alkenes are generally of low toxicity but they are considered aspiration hazards.

##### EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

##### SKIN

■ There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

■ Medium sized alkenes can cause skin irritation and sloughing, especially in long-term exposure.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

■ The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis.

The material is unlikely to produce an irritant dermatitis as described in EC Directives .

■ The material may accentuate any pre-existing dermatitis condition.

##### INHALED

■ Inhalation of vapours may cause drowsiness and dizziness.

This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ There is some evidence to suggest that the material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Inhalation hazard is increased at higher temperatures.

■ Inhalation of high concentrations of gas/vapor causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.

■ Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness.

Serious poisonings may result in respiratory depression and may be fatal.

#### CHRONIC HEALTH EFFECTS

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Oral administration of C20-24 alkenes has not been shown to exhibit significant toxicity in humans.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
trans-2-heptene	14686-13-6	>98

## Section 4 - FIRST AID MEASURES

##### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. · Avoid giving milk or oils. · Avoid giving alcohol. · If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

##### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

##### SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

##### INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

#### NOTES TO PHYSICIAN

■ Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or

pharmacologically.

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO<sub>2</sub> 50 mm Hg) should be intubated.

## Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	87.757 @ 37.7 C
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	0.701
Lower Explosive Limit (%):	1.0

### EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.

### FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 500 metres in all directions.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Liquid and vapor are highly flammable.
  - Severe fire hazard when exposed to heat, flame and/or oxidizers.
- Combustion products include: carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.

### FIRE INCOMPATIBILITY

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

### PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

Respirator:

Type A Filter of sufficient capacity

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.

### MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- Electrostatic discharge may be generated during pumping - this may result in fire.
- Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\leq 1$  m/sec until fill pipe submerged to twice its diameter, then  $\leq 7$  m/sec).
- Avoid splash filling.
- Do NOT use compressed air for filling discharging or handling operations.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- DO NOT allow clothing wet with material to stay in contact with skin.

### RECOMMENDED STORAGE METHODS

- Glass container.

Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid.

- For low viscosity materials (i): Drums and jerricans must be of the non-removable head type. (ii): Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C).

### STORAGE REQUIREMENTS

- Polymerization may occur slowly at room temperature.
- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- trans-2-heptene: CAS:14686-13-6

### PERSONAL PROTECTION



### RESPIRATOR

Type A Filter of sufficient capacity

### EYE

- Safety glasses with side shields.
- Chemical goggles.

### HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### OTHER

- Overalls.
- PVC Apron.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

### ENGINEERING CONTROLS

■ For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Floats on water.

State	Liquid	Molecular Weight	98.21
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	208- 210	Solubility in water (g/L)	Immiscible
Flash Point (°F)	30	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	87.757 @ 37.7 C
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	0.701
Lower Explosive Limit (%)	1.0	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	100	Evaporation Rate	Not Applicable

### APPEARANCE

Colourless, volatile liquid; floats on water. Soluble in acetone, alcohol, ether.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

- The various oxides of nitrogen and peroxyacids may be dangerously reactive in the presence of alkenes. BREThERICK L.: Handbook of Reactive Chemical Hazards
- Avoid reaction with strong Lewis or mineral acids.
- Reaction with halogens requires carefully controlled conditions.
- Free radical initiators should be avoided.

The interaction of alkenes and alkynes with nitrogen oxides and oxygen may produce explosive addition products; these may form at very low temperatures and explode on heating to higher temperatures (the addition products from 1,3-butadiene and cyclopentadiene form rapidly at -150 C and ignite or explode on warming to -35 to -15 C). These derivatives ("pseudo- nitrosites") were formerly used to characterize terpene hydrocarbons.

Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

trans-2-heptene

### TOXICITY AND IRRITATION

#### TRANS-2-HEPTENE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

#### ■ For olefins:

Acute toxicity: The weight of evidence indicates alpha and internal olefins with carbon numbers between C6 and C54 have a similar and low level of mammalian toxicity, and the toxicity profile is not affected by changes in the location of the double bond or the addition of branching to the structure. These materials are not eye irritants or skin sensitizers. Prolonged exposure of the skin for many hours may cause skin irritation.

Olefins (alkenes) ranging in carbon number from C6 to C24 alpha (linear) and internal (linear and branched), and C24-54 alpha (linear and branched) demonstrate low acute toxicity by the oral, inhalation and dermal routes of exposure: Rat oral LD50 >5 g/kg; rat 4-hr inhalation LC50 range = 110 mg/L (32,000 ppm) to 6.4 mg/L (693 ppm) for C6 to C16; and rat/rabbit dermal LD50 > highest doses tested (1.43-10 g/kg).

Repeated dose toxicity: Studies, using the inhalation (C6 alpha), dermal (C12-16 alpha), or oral (C6 alpha and internal linear/branched; C8 and C14 alpha; and C16/18, C18 and C20-24 internal linear/branched) routes of exposure, have shown comparable levels of low toxicity in rats. In females, alterations in body and organ weights, changes in certain clinical chemistry/haematology values, and liver effects were noted (NOELs of >= 100 mg/kg oral or >= 3.44 mg/kg [ 1000 ppm] inhalation). In males, alterations in organ weights, changes in certain clinical chemistry/hematology values, liver effects, and kidney damage were noted (LOELs > =100 mg/kg oral only). The male rat kidney damage suggests alpha2u,- globulin nephropathy, a male rat specific effect that is not considered relevant to human health. The noted liver effects were seen in oral studies with C14 alpha olefins (minimal-to-mild hepatocyte cytoplasmic vacuolation with increased liver weight in males and females) and with C20-24 internal olefins (minimal centrilobular hepatocyte hypertrophy with increased liver weight in females only). No effects were present in the study with C20-24 internal olefins following a 4-week recovery period, indicating reversibility of the observed effects. These liver effects seen only with the larger molecules may be indirect effects of an intensified liver burden, rather than a direct toxic effect of the olefin. Based on evidence from neurotoxicity screens included in repeated dose studies with C6 and C14 alpha olefins and with C6, C16/18 and C20-24 internal linear/branched olefins, the category members are not neurotoxic.

Reproductive/ developmental toxicity: Based on evidence from reproductive/developmental toxicity screens in rats with C6 and C14 alpha olefins and C6 and C18 linear/branched internal olefins, along with the findings of no biologically significant effects on male or female reproductive organs in repeated dose toxicity studies, olefins are not expected to cause reproductive or developmental toxicity.

Genotoxicity: Based on the weight of evidence from studies with alpha and internal olefins, category members are not genotoxic.

Carcinogenicity: No carcinogenicity tests have been conducted on C6-54 alpha or internal olefins; however, there are no structural alerts indicating a potential for carcinogenicity in humans.

None available.

## Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
trans-2-heptene	LOW		LOW	MED

## Section 13 - DISPOSAL CONSIDERATIONS

## US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.

· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

## Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols: None Hazard class or Division: 3

Identification Numbers: UN2278 PG: II

Label Codes: 3 Special provisions: IB2, T4, TP1

Packaging: Exceptions: 150 Packaging: Non- bulk: 202

Packaging: Exceptions: 150 Quantity limitations: 5 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 60 L Vessel stowage: Location: B aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

n-Heptene

### Air Transport IATA:

ICAO/IATA Class: 3 ICAO/IATA Subrisk: None

UN/ID Number: 2278 Packing Group: II

Special provisions: None

Cargo Only

Packing Instructions: 60 L Maximum Qty/Pack: 5 L

Passenger and Cargo Passenger and Cargo

Packing Instructions: 364 Maximum Qty/Pack: 353

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 1 L Maximum Qty/Pack: Y341

Shipping Name: N-HEPTENE

### Maritime Transport IMDG:

IMDG Class: 3 IMDG Subrisk: None

UN Number: 2278 Packing Group: II

EMS Number: F-E , S-D Special provisions: None

Limited Quantities: 1 L Marine Pollutant: Yes

Shipping Name: HEPTENE 2278

## Section 15 - REGULATORY INFORMATION

**trans-2-heptene (CAS: 14686-13-6) is found on the following regulatory lists;**

"US - Pennsylvania - Hazardous Substance List"

## Section 16 - OTHER INFORMATION

ND

Substance CAS Suggested codes trans- 2- heptene 14686- 13- 6 Xn; R22 N; R51/53

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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