

## SAFETY DATA SHEET

Preparation Date: 11/7/2016

Revision Date: Not Applicable

Revision Number: Not Applicable

### 1. IDENTIFICATION

#### Product identifier

**Product code:** T1684  
**Product Name:** 1,2,4-Trivinylcyclohexane, (mixture of isomers)

#### Other means of identification

**Synonyms:** No information available  
**CAS #:** 2855-27-8  
**RTECS #** Not available  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** For manufacturing or laboratory use only.  
**Uses advised against** Not for food or drug use.

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000.

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300

**Contact Person:** Martin LaBenz (West Coast)

**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

|  |             |
|--|-------------|
| Skin corrosion/irritation                        | Category 2  |
| Serious eye damage/eye irritation                | Category 2A |
| Specific target organ toxicity (single exposure) | Category 3  |
| Flammable liquids                                | Category 4  |

#### Label elements

##### **Warning**

##### **Hazard statements**

Causes skin irritation  
 Causes serious eye irritation  
 May cause respiratory irritation  
 Combustible liquid

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 1,2,4-Trivinylcyclohexane, (mixture of isomers)

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**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
Keep cool  
Wear eye/face protection  
Wear protective gloves

**Precautionary Statements - Response**

IN CASE OF FIRE: Use dry chemical, water spray, alcohol-resistant foam or CO<sub>2</sub> to extinguish.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
IF ON SKIN: Wash with plenty of water  
If skin irritation occurs: Get medical advice/attention  
Take off contaminated clothing and wash it before reuse  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**Precautionary Statements - Storage**

Store in a well-ventilated place. Keep container tightly closed  
Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Components                                      | CAS-No.   | Weight % |
|---|-----------|----------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | 100      |

**4. FIRST AID MEASURES****First aid measures**

**General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

**Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.

**Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention.

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**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

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

**Symptoms** Causes serious eye irritation. Causes skin irritation. Irritating to respiratory system.

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

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing Media**

**Suitable Extinguishing Media:** Dry chemical. Carbon dioxide (CO<sub>2</sub>). Water spray, mist, or foam.

**Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:** Carbon Oxides.

**Specific hazards:** Combustible material  
May be ignited by heat, sparks or flames  
Container explosion may occur under fire conditions or when heated  
Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks)

**Special Protective Actions for Firefighters**

**Specific Methods:** For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal; do not scatter the material.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Remove all sources of ignition.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up** Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. All equipment used when handling the product must be grounded. Remove all sources of ignition. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Keep away from sources of ignition - no smoking. Handle in accordance with good industrial hygiene and safety practice. Do not ingest.

### Conditions for safe storage, including any incompatibilities

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Store at room temperature in the original container. Store in a segregated and approved area. Store away from incompatible materials.

#### **Incompatible Materials:**

Strong oxidizing agents  
Strong acids  
Strong bases  
Reducing agents

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **National occupational exposure limits**

##### **United States**

| Components                                      | CAS-No.   | OSHA | NIOSH | ACGIH | AIHA WHEEL |
|---|-----------|------|-------|-------|------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | None | None  | None  | None       |

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## Canada

| Components                                      | CAS-No.   | Canada - Alberta | Canada - British Columbia | Canada - Ontario | Canada - Quebec |
|---|-----------|------------------|---------------------------|------------------|-----------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | None             | None                      | None             | None            |

## Australia and Mexico

| Components                                      | CAS-No.   | Australia | Mexico |
|---|-----------|-----------|--------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | None      | None   |

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

- Eye protection:** Goggles
- Skin and body protection:** Gloves. Long sleeved clothing. Chemical resistant apron.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|   |  |  |
|---|--|--|
| <b>Physical state:</b><br>Liquid                                | <b>Appearance:</b><br>Clear.                                   | <b>Color:</b><br>Colorless to pale yellow.                           |
| <b>Odor:</b><br>No information available.                       | <b>Taste</b><br>No information available.                      | <b>Formula:</b><br>C <sub>12</sub> H <sub>18</sub>                   |
| <b>Molecular/Formula weight:</b><br>162.28                      | <b>Flammability:</b><br>Combustible                            | <b>Flashpoint (°C/°F):</b><br>69°C (156°F)                           |
| <b>Flash Point Tested according to:</b><br>Closed cup           | <b>Autoignition Temperature (°C/°F):</b><br>270°C (518°F)      | <b>Lower Explosion Limit (%):</b><br>No information available        |
| <b>Upper Explosion Limit (%):</b><br>No information available   | <b>Melting point/range(°C/°F):</b><br>No information available | <b>Decomposition temperature(°C/°F):</b><br>No information available |
| <b>Boiling point/range(°C/°F):</b><br>85° - 88°C (185° - 190°F) | <b>Bulk density:</b><br>No information available               | <b>Density (g/cm<sup>3</sup>):</b><br>0.85                           |
| <b>Specific gravity:</b><br>No information available            | <b>pH:</b><br>No information available                         | <b>Vapor pressure @ 20°C (kPa):</b><br>0.03                          |
| <b>Evaporation rate:</b>  |  |  |

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No information available

**Vapor density:**  
5.60

**VOC content (g/L):**  
No information available

**Odor threshold (ppm):**  
No information available

**Partition coefficient  
(n-octanol/water):**  
No information available

**Viscosity:**  
No information available

**Miscibility:**  
No information available

**Solubility:**  
Soluble in Methanol

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with oxidizing agents

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:**  
Strong oxidizing agents  
Strong acids  
Strong bases  
Reducing agents

**Hazardous decomposition products:** Carbon oxides.

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**  
Skin. Eyes. Ingestion. Inhalation.

### Acute Toxicity

### Component Information

1,2,4-Trivinylcyclohexane, (mixture of isomers)

CAS-No. 2855-27-8

**LD50/oral/rat** = No information available  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = No information available

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## Product Information

**LD50/oral/rat =**

**VALUE- Acute Tox Oral =** No information available

**LD50/oral/mouse =**

**Value - Acute Tox Oral =** No information available

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal =** No information available

**LD50/dermal/rat**

**VALUE -Acute Tox Dermal =** No information available

**LC50/inhalation/rat**

**VALUE-Vapor =** No information available

**VALUE-Gas =** No information available

**VALUE-Dust/Mist =** No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor =** No information available

**VALUE - Gas =** No information available

**VALUE - Dust/Mist =** No information available

## Symptoms

**Skin Contact:** Causes skin irritation.

**Eye Contact:** Causes eye irritation.

**Inhalation** Irritating to respiratory system. Symptoms may include coughing and wheezing. Other symptoms may include sore throat, chest tightness, coughing.

**Ingestion** Health injuries are not known or expected under normal use.

**Aspiration hazard** No information available.

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Chronic Toxicity** No information available.

**Sensitization:** No information available.

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic.

| Components                                      | CAS-No.   | IARC       | ACGIH - Carcinogens | NTP        | OSHA HCS - Carcinogens | Australia - Notifiable Carcinogenic Substances | Australia - Prohibited Carcinogenic Substances |
|---|-----------|------------|---------------------|------------|------------------------|--|--|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not listed | Not listed          | Not listed | Not listed             | Not listed                                     | Not listed                                     |

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

**Product code:** T1684

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NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

**Reproductive toxicity** No data is available  
**Reproductive Effects:** No information available  
**Developmental Effects:** No information available  
**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** Respiratory system.  
**STOT - repeated exposure** No information available.  
**Target Organs:** No information available.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.  
**Persistence and degradability:** No information available  
**Bioaccumulative potential:** No information available.  
**Mobility:** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:**  
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**  
Empty containers should be taken for local recycling, recovery or waste disposal

| Components                                      | CAS-No.   | RCRA - F Series Wastes | RCRA - K Series Wastes | RCRA - P Series Wastes | RCRA - U Series Wastes |
|---|-----------|------------------------|------------------------|------------------------|------------------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | None                   | None                   | None                   | None                   |

**14. TRANSPORT INFORMATION**

**DOT**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Class** No information available  
**Packing group:** No information available  
**Emergency Response Guide Number** No information available  
**Marine Pollutant** No data available

**Product code:** T1684

**Product name:**  
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**DOT RQ (lbs):** No information available  
**Special Provisions** No Information available  
**Symbol(s):** No information available  
**Description:** No information available

**TDG (Canada)**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Marine Pollutant** No Information available  
**Description:** No information available

**ADR**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Packing Group:** No information available  
**Subsidiary Risk:** No information available

**IMO / IMDG**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Marine Pollutant** No information available

**RID**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available

**ICAO**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available

**IATA**

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**ERG Code:** No information available  
**Special Provisions** No information available

|                                   |
|-----------------------------------|
| <b>15. REGULATORY INFORMATION</b> |
|-----------------------------------|

**International Inventories**

| Components | CAS-No. | U.S. TSCA | KOREA KECL | Philippines | Japan ENCS | CHINA | Australia | EINECS-No. |
|------------|---------|-----------|------------|-------------|------------|-------|-----------|------------|
|------------|---------|-----------|------------|-------------|------------|-------|-----------|------------|

**Product code:** T1684

**Product name:**  
 1,2,4-Trivinylcyclohexane, (mixture of isomers)

|   |           |           |             |                |             |         |               |                      |
|---|-----------|-----------|-------------|----------------|-------------|---------|---------------|----------------------|
|   |           |           |             | <b>(PICCS)</b> |             |         | <b>(AICS)</b> |                      |
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Present P | Not present | Present        | Not present | Present | Not present   | Present<br>220-668-9 |

## U.S. Regulations

### California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

#### Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

#### Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

| Components                                      | CAS-No.   | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity: |
|---|-----------|------------|------------------------|----------------------------|-------------------------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not Listed | Not Listed             | Not Listed                 | Not Listed                    |

## CERCLA/SARA

| Components                                      | CAS-No.   | CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting de minimis |
|---|-----------|---|---|--|---------------------------------|------------------------------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | None  | None  | None   | None                            | None                               |

## U.S. TSCA

| Components                                      | CAS-No.   | TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS) | TSCA 8(d) -Health and Safety Reporting |
|---|-----------|---|--|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not Applicable  | Not Applicable                         |

## Canada

### WHMIS hazard class:

B3 Combustible liquid

D2B Toxic materials

### Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

## Inventory

| Components                                      | CAS-No.   | Canada (DSL) | Canada (NDSL) |
|---|-----------|--------------|---------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not Listed   | Present       |

| Components                                      | CAS-No.   | CEPA Schedule I - Toxic Substances                          |
|---|-----------|---|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not listed  |
| Components                                      | CAS-No.   | CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting |
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 | Not listed  |

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**EU Classification****R-phrase(s)**

R36/37/38 - Irritating to eyes, respiratory system and skin.

**S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 - Wear suitable gloves.

| Components                                      | CAS-No.   | Classification | Concentration Limits: | Safety Phrases |
|---|-----------|----------------|-----------------------|----------------|
| 1,2,4-Trivinylcyclohexane, (mixture of isomers) | 2855-27-8 |                | No information        |                |

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

Xi - Irritant.

Xi

**16. OTHER INFORMATION**

**Preparation Date:** 11/7/2016  
**Revision Date:** Not Applicable  
**Prepared by:** Roumann Pangilinan

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**