1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1,2,3,4-Tetrahydronaphthalene
Product Number : 522651
Brand : Sigma-Aldrich
Supplier : Sigma-Aldrich
Supplier Address : 3050 Spruce Street
                  SAINT LOUIS MO  63103
                  USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
                         Product Safety - Americas Region
                         1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Carcinogen, Harmful by ingestion., Irritant

Target Organs
Eyes, Kidney, Central nervous system, Blood, Lungs, Liver

GHS Classification
Flammable liquids (Category 4)
Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Carcinogenicity (Category 2)
Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram
              ⚠️ Ⓟ

Signal word: Warning
Hazard statement(s)
H227  Combustible liquid
H302 + H332 Harmful if swallowed or if inhaled
H315  Causes skin irritation.
H319  Causes serious eye irritation.
H351  Suspected of causing cancer.
H401  Toxic to aquatic life.

Precautionary statement(s)
P281 Use personal protective equipment as required.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
HMIS Classification
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 2
- Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 2
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
- Skin: Harmful if absorbed through skin. Causes skin irritation.
- Eyes: Causes eye irritation.
- Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>Tetralin® solvent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C_{10}H_{12}</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>132.2 g/mol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,4-Tetrahydronaphthalene</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>119-64-2</td>
</tr>
<tr>
<td>EC-No.</td>
<td>204-340-2</td>
</tr>
<tr>
<td>Index-No.</td>
<td>601-045-00-4</td>
</tr>
<tr>
<td>Naphthalene</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>91-20-3</td>
</tr>
<tr>
<td>EC-No.</td>
<td>202-049-5</td>
</tr>
<tr>
<td>Index-No.</td>
<td>601-052-00-2</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

**Conditions of flammability**
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Eye & Upper Respiratory Tract irritation Hematologic effects Eye damage Not classifiable as a human carcinogen Danger of cutaneous absorption

| STEL | 15 ppm | USA. ACGIH Threshold Limit Values (TLV) |

Eye & Upper Respiratory Tract irritation Hematologic effects Eye damage Not classifiable as a human carcinogen Danger of cutaneous absorption

<table>
<thead>
<tr>
<th>TWA</th>
<th>10 ppm</th>
<th>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50 mg/m³</td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>15 ppm</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td>75 mg/m³</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td>50 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

The value in mg/m³ is approximate.

<table>
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<tr>
<th>TWA</th>
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</tr>
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<tbody>
<tr>
<td></td>
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</tr>
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<td></td>
<td>75 mg/m³</td>
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</tbody>
</table>
**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- **Form**: liquid
- **Colour**: no data available

**Safety data**
- **pH**: no data available
- **Melting point/freezing point**: Melting point/range: -35 °C (-31 °F) - lit.
- **Boiling point**: 207 °C (405 °F) - lit.
- **Flash point**: no data available
- **Ignition temperature**: no data available
- **Autoignition temperature**: no data available
- **Lower explosion limit**: no data available
- **Upper explosion limit**: no data available
- **Vapour pressure**: no data available
- **Density**: 0.973 g/mL at 25 °C (77 °F)
- **Water solubility**: no data available
- **Partition coefficient: n-octanol/water**: no data available
- **Relative vapour density**: no data available
- **Odour**: no data available
- **Odour Threshold**: no data available
- **Evaporation rate**: no data available

### 10. STABILITY AND REACTIVITY
Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
no data available

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 1,570 mg/kg

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Naphthalene)
2B - Group 2B: Possibly carcinogenic to humans (Naphthalene)

NTP: Reasonably anticipated to be a human carcinogen (Naphthalene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available
Aspiration hazard
no data available

Potential health effects

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
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<tr>
<td>Inhalation</td>
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<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
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Signs and Symptoms of Exposure
Central nervous system depression

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

- Toxicity to fish
  - LC50 - Danio rerio (zebra fish) - 3.2 mg/l - 96.0 h
  - LC50 - Danio rerio (zebra fish) - 3.2 mg/l - 96.0 h

- Toxicity to daphnia and other aquatic invertebrates
  - EC50 - Daphnia magna (Water flea) - 9.5 mg/l - 48 h
  - EC50 - Daphnia magna (Water flea) - 2.4 mg/l - 48 h

- Toxicity to algae
  - EC50 - Desmodesmus subspicatus (green algae) - 7 mg/l - 72 h

Persistence and degradability

- Biodegradability
  - Biotic/Aerobic
  - Result: 81 % - Readily biodegradable.

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

- Toxic to aquatic life.
  - An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3082  Class: 9  Packing group: III  EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2,3,4-Tetrahydronaphthalene)
Marine pollutant: Marine pollutant

IATA
UN number: 3082  Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (1,2,3,4-Tetrahydronaphthalene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Carcinogen, Harmful by ingestion., Irritant

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
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<td>Naphthalene</td>
<td>91-20-3</td>
<td>2007-07-01</td>
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SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

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<td>1989-08-11</td>
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New Jersey Right To Know Components

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California Prop. 65 Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARNING! This product contains a chemical known to the State of California to cause cancer.</td>
<td>CAS-No.</td>
<td>Revision Date</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>1990-01-01</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Further information
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