1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Commercial Product Name: Vinyl Toluene

Use of the Substance/Preparation: Intermediate, functional monomer

Company: Deltech Corporation
11911 Scenic Highway
Baton Rouge, LA 70807
USA

Emergency telephone number:
While in Europe +32 3 575 55 55
While in the US Chemtrec 1-800-424-9300 or
24 Hour Emergency Phone 225-775-0150

Email: orders@deltechcorp.com

2. HAZARDS IDENTIFICATION

Harmful by inhalation.
Irritating to eyes, respiratory system and skin.
Flammable.
Heat may cause pressure rise with explosion of tanks/drum.
The mixture of product vapor and air could be explosive. Vapor is heavier than air.
Strongly exothermic reactions may be caused by: heat, free radical formers, peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature of the preparation

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Value(s)</th>
<th>CAS No / EC No</th>
<th>Symbol(s) R-Phrase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinyl Toluene</td>
<td>&gt; 99%</td>
<td>246-562-2</td>
<td>Xn, R10, R20, 36/37/38</td>
</tr>
</tbody>
</table>

(25013-15-4)

NOTE: Please refer to section 15 for final classification of above product based on toxicity testing of the mixture.

4. FIRST AID MEASURES

Eye contact: Rinse immediately with plenty of water for at least 15 minutes while opening eyelids.
Obtain medical attention.
Consult a doctor/medical service if irritation persists.
### Skin contact:
- Take off contaminated clothing and shoes immediately.
- Wash off with soap and plenty of water.
- Do not apply (chemical) neutralizing agents.
- Obtain medical attention.

### Inhalation:
- Remove the victim from contaminated area and into fresh air.
- Unconscious: maintain adequate airway and respiration.
- Consult a doctor/medical service if breathing problems develop.

### Ingestion:
- Do not induce vomiting.
- Call a physician immediately.

### General advice:
- Never give anything by mouth to an unconscious person.

### 5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Use dry chemical, CO₂, water spray or alcohol resistant foam.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoid use of water due to danger of spreading burning material over a wider area.</td>
</tr>
<tr>
<td></td>
<td>Substance does not mix with water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific hazards</th>
<th>Flammable vapors will be released at or above liquid flashpoint.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vapors are heavier than air and may spread along floors.</td>
</tr>
<tr>
<td></td>
<td>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.</td>
</tr>
<tr>
<td></td>
<td>Cool containers / tanks with spray water to avoid overheating.</td>
</tr>
<tr>
<td></td>
<td>Burning produces obnoxious and toxic fumes. CO, COx.</td>
</tr>
<tr>
<td></td>
<td>The pressure in sealed containers can increase under the influence of heat.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special protective equipment for firefighters</th>
<th>Wear personal protective equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wear self contained breathing apparatus for fire fighting if necessary.</td>
</tr>
</tbody>
</table>

### 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Personal precautions</th>
<th>Wear personal protective equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remove all sources of ignition.</td>
</tr>
<tr>
<td></td>
<td>Avoid breathing vapors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental precautions</th>
<th>Do not flush into surface water or sanitary sewer system. Notify appropriate authority if material enters sewer or drain.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stop leak at source. Contain spilled material with sand or earthen berm.</td>
</tr>
<tr>
<td></td>
<td>Pump spilled material to suit container for disposal.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>Absorb with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Collect and place in suitable container for proper disposal.</td>
</tr>
<tr>
<td></td>
<td>Flush contaminated area with water.</td>
</tr>
</tbody>
</table>
7. HANDLING AND STORAGE

Storage: Keep at temperatures below 30 °C. 
Keep away from direct sunlight. 
Keep containers tightly closed in a cool, well-ventilated place. 
Avoid contact with heat sources, ignition sources, oxidizing agents, acids, bases and peroxides.

Handling: Take precautionary measures against static discharges. 
Do not breathe vapors or spray mist. 
Avoid contact with skin and eyes. 
Wear proper protective equipment when handling.

Specific use(s): Avoid use of brass, copper or copper alloy materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ingredients with occupational exposure limits to be monitored
None listed

Personal protective equipment

Respiratory protection: In case of insufficient ventilation wear suitable respiratory equipment. (Filter type P1/A)

Hand protection: Rubber gloves (EN 374) 
Material thickness: 1 – 2 mm 
Time for permeation: > 480 minutes 
Gloves must be in specification with EC-Guideline 89/686/EWG and the resulting norm EN 374. 
Prior to use check tightness / impermeability. If other glove materials are intended to be used, it is the customer's sole responsibility to verify suitability.

Eye protection: Tightly fitting safety goggles (EN 166)

Hygiene measures: Immediately change contaminated clothing. Apply skin-protective barrier cream. Ensure adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid
Colour: Colorless
Odour: Hydrocarbon-like
pH: No data available
Boiling point/range: 168 °C
Melting point/range: -77 °C
Flash point: 53°C
## Vinyl Toluene Monomer

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>575 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>(Air = 1.0) 4,1</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>1.1 – 5.3 % vol. in air</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>0.24 mmHg @ 20°C</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.4 @ 25 °C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>400 ppm @ 25°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.8 mPa @ 25°C</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

- **Hazardous decomposition products**: Possible decomposition products are: Carbon oxides.
- **Materials to avoid**: Incompatible with strong acids and oxidizing agents and peroxides.
- **Conditions to avoid**: Heat, flames and sparks.
- **Further information**: Polymerization can occur. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.

### 11. TOXICOLOGICAL INFORMATION

- **Acute toxicity**: Harmful by inhalation. LC_{50}/4 hr = 3000 mg/m³ (rats).

  Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

  Inhalation of vapors in high concentration may cause irritation of respiratory system.

  **SUBCHRONIC EFFECTS**: Repeated inhalation exposure of rats to 1,000 ppm of vinyl toluene for 6 hours a day, 5 days per week for 13 weeks resulted in decreased body weights, excessive lacrimation, rough hair coats and increased liver weights. Effects were noted to be more pronounced in male rats than female rats. Male rats exposed to 160, 400, and 1000 ppm for the same time period were also found to have mild nephrotoxic effects.

- **Skin contact**: Irritating to skin. Contact may cause dermatitis.
- **Eye contact**: Irritating to eyes.
- **Ingestion**: Ingestion may provoke the following symptoms: Nausea, dizziness or unconsciousness. May affect the central nervous system. LD_{50} = 5000 mg/kg (rats)
12. ECOLOGICAL INFORMATION

Bioaccumulation: Not expected to be bioaccumulative

Ecotoxicity effects:
- **EC_{50}/72h/algae**: 2.6 mg/L (Selenastrum capricornutum). NOEC 1.6 mg/L
- **Fish toxicity**:
  - **EC_{50}/72h/fish**: 5.2 mg/L (Pimephales promelas). NOEC 2.6 mg/L
  - **EC_{50}/7d/fish**: 2.6 mg/L (Leopomis machrochirus). NOEC 0.66 mg/L
- **Daphnia toxicity**:
  - **EC_{50}/48h/daphnia**: 0.81 mg/L (Oncorhynchus mykiss). NOEC 1.6 mg/L

Persistence and degradability:
- Biodegradation: more than 95% of para-vinyl toluene was found to be eliminated from activated sludge within 19 days. Vinyl toluene is expected to biodegrade in a wastewater treatment plant.
- Photodegradation: para-vinyl toluene has the potential to undergo direct photolysis in sunlit waters or in ambient air, however, reactions with photochemically produced hydroxyl radicals and ozone in the atmosphere are the most likely fate processes. Para-vinyl toluene has an ESTIMATED atmospheric half-life of 12.2 hrs at 25°C at an atmospheric concentration of 5E+5 hydroxyl radicals per cu cm, and 13 hrs at 25°C at an atmospheric concentration of 7E+11 ozone molecules per cu cm.
- Environmental fate and pathway elements: para-vinyl toluene is not expected to undergo hydrolysis in the environment.

13. DISPOSAL CONSIDERATIONS

Waste from residues: Recycle/reuse or dispose of in accordance with local regulations. Do not let product enter drains.

Packaging: Dispose of in accordance with local regulations. Empty drums are a fire/explosion hazard.

14. TRANSPORT INFORMATION

**ROAD & RAIL**
- **Proper Shipping Name**: Vinyl Toluene, Stabilized (UN 2618)
- **Hazard Class**: 3
- **ID Number**: UN2618  Hazard Identification Number (Kemler): 39
- **Packing Group**: PG III
## OCEAN

**Proper Shipping Name:** Vinyl Toluene, Stabilized (UN 2618)

**Hazard Class:** 3

**ID Number:** UN2618

**Packing Group:** PG III

**Marine Pollutant:** Yes

## AIR

**Proper Shipping Name:** Vinyl Toluene, Stabilized (UN 2618)

**Hazard Class:** 3

**ID Number:** UN2618

**Packing Group:** PG III

## INLAND WATERWAYS

**Proper Shipping Name:** Vinyl Toluene, Stabilized (UN 2618)

**Hazard Class:** 3

**ID Number:** UN2618

**Packing Group:** PG III

---

## 15. REGULATORY INFORMATION

### EC Classification and User Label Information

**Hazard Symbol:**

- Xn: Harmful.

**Risk Phrases:**

- **R10:** Flammable
- **R20:** Harmful by inhalation
- **R36/37/38:** Irritating to eyes, respiratory system and skin.

**Safety Phrases:**

- **S16:** Keep away from sources of ignition. No Smoking.
- **S23:** Do not breathe vapour.
- **S24/25:** Avoid contact with skin and eyes
- **S26:** In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.

**Contains:** para-tertiary-Butylcatechol, may produce an allergic reaction.

---

## 16. OTHER INFORMATION

(R-) phrases in Section 2

- **R10:** Flammable
- **R20:** Harmful by inhalation
- **R36/37/38:** Irritating to eyes, respiratory system and skin.
### MATERIAL SAFETY DATA SHEET

**Date:** 07/13/11  
**Revision nr:** 4  

**Vinyl Toluene Monomer**  
**Supersedes:** 06/22/2010

<table>
<thead>
<tr>
<th>Revision Number</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Date</td>
<td>13.7.2011</td>
</tr>
<tr>
<td>Reason for revision:</td>
<td>Add Marine Pollutant - Ocean.</td>
</tr>
</tbody>
</table>

**DISCLAIMER OF LIABILITY** The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.