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

Material Name: TOPSol 3040A
Uses: Industrial Solvent. Restricted to professional users.
Supplier: TOP Solvent (Vietnam) Limited Liability Company
Go Dau Industrial Park, Long Thanh, Dong Nai Province
Viet Nam
Telephone: +84 8 3827 9030 ~ 34
Fax: +84 8 3827 9035
Emergency Telephone Number: +84 8 3827 9030 ~ 34 [working hours] or +66 38 683 090 ext.103 [out of working hours]
Emergency Fax Number: +66 38 683 165 [out of working hours]

2. HAZARDS IDENTIFICATION

GHS Classification:
- FLAMMABLE LIQUIDS, Category 3
- SKIN CORROSION/IRRITATION, Category 3
- SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (SINGLE EXPOSURE), Category 3, Narcotic effects.
- ASPIRATION HAZARD, Category 1
- AQUATIC TOXICITY (CHRONIC), Category 2

GHS Label Elements: 

- Signal Words: Danger
- GHS Hazard Statements:
  - PHYSICAL HAZARDS: Flammable liquid and vapour.
  - HEALTH HAZARDS: Causes mild skin irritation. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways.
  - ENVIRONMENTAL HAZARDS: Toxic to aquatic life with long lasting effects.

GHS Precautionary Statements: 

Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

RESPONSE:
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. In case of fire: Use foam, water spray or fog for extinction. Collect spillage.

STORAGE:
Store in a well-ventilated place. Keep cool. Store locked up.

DISPOSAL:
Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other Hazards which do not result in Classification:
In use, may form flammable/explosive vapour-air mixture. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Auditory system. Repeated exposure may cause skin dryness or cracking. Slightly irritating to respiratory system.

Aggravated Medical Condition:
Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Auditory system. Skin. Respiratory system.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>LAWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS No.</td>
<td>64742-82-1</td>
</tr>
<tr>
<td>INDEX No.</td>
<td>649-330-00-2</td>
</tr>
<tr>
<td>Identification No.</td>
<td>265-185-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>CAS</th>
<th>Identification No.</th>
<th>Conc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3,5-Trimethyl benzene</td>
<td>108-67-8</td>
<td>203-604-4</td>
<td>0.60 - 3.00 %</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>202-849-4</td>
<td>&lt;= 0.30 %</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

**Inhalation**: Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

**Skin Contact**: Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.

**Eye Contact**: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

**Ingestion**: If swallowed, do not induce vomiting; transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Most Important Symptoms/Effects, Acute & Delayed**: Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Other signs and symptoms of central nervous system (CNS) depression may include headache, nausea, and lack of coordination. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. Auditory system effects may include temporary hearing loss and/or ringing in the ears.

**Immediate medical attention, special treatment**: Causes central nervous system depression. Dermatitis may result from prolonged or repeated exposure. Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

**Specific hazards arising from Chemicals**: Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

**Suitable Extinguishing Media**: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

**Unsuitable Extinguishing Media**: Do not use water in a jet.

**Protective Equipment & Precautions for Fire Fighters**: Wear full protective clothing and self-contained breathing apparatus.

**Additional Advice**: Keep adjacent containers cool by spraying with water.
6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

**Personal Precautions, Protective Equipment and Emergency Procedures**
- Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

**Environmental Precautions**
- Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

**Methods and Material for Containment and Clean Up**
- For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

**Additional Advice**
- See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.

7. HANDLING AND STORAGE

**General Precautions**
- Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

**Precautions for Safe Handling**
- Avoid contact with skin, eyes and clothing. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid
generation of electrostatic discharge (<= 1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Handle and open container with care in a well-ventilated area. Ventilate workplace in such a way that the Occupational Exposure Limit (OEL) is not exceeded. Do not empty into drains.

Conditions for Safe Storage: Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Bulk storage tanks should be diked (bunded). Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment. Storage Temperature: Ambient.

Product Transfer: Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve.

Recommended Materials: For containers, or container linings use mild steel, stainless steel. For container paints, use epoxy paint, zinc silicate paint.

Unsuitable Materials: Avoid prolonged contact with natural, butyl or nitrile rubbers.

Container Advice: Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

Expiry Date: The shelf life of product is dependent on many variables, including container material of construction, storage temperature, atmospheric breathing, etc. Because of the effect of these variables, it is difficult to make a firm prediction of shelf life. Provided the safety and handling recommendations are followed, the product has shelf life of 18 months at least when stored below 40°C (104°F) in drums and 6 months when stored in bulk. This does not necessarily mean that after this period their fitness for purpose has expired, but merely that it is advised to seek professional advice after this longer storage time.

Other Advice: Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Material</th>
<th>Source</th>
<th>Type</th>
<th>ppm</th>
<th>mg/m3</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3,5-Trimethyl</td>
<td>ACGIH</td>
<td>TWA</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Material Safety Data Sheet

<table>
<thead>
<tr>
<th>benzene</th>
<th>Ethylbenzene</th>
<th>ACGIH</th>
<th>TWA</th>
<th>100 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>STEL</td>
<td>125 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>25 ppm</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Information**: Adequate ventilation to control airborne concentrations below the exposure guidelines/limits.

**Material**

<table>
<thead>
<tr>
<th>Ethylbenzene</th>
<th>Source</th>
<th>Hazard Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans.</td>
</tr>
</tbody>
</table>

**Biological Exposure Index (BEI)** - See reference for full details

No biological limit allocated.

**Appropriate Engineering Controls**: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.

**Individual Protection Measures**: Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

**Respiratory Protection**: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN141. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

**Hand Protection**: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: Nitrile rubber gloves Incidental contact/Splash protection: PVC or neoprene rubber gloves Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

**Eye Protection**: Monogoggles (EN166) Chemical splash goggles (chemical monogoggles).
Protective Clothing: Chemical resistant gloves/gauntlets, boots, and apron. Skin protection not ordinarily required beyond standard issue work clothes.


9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colourless. Liquid.
Odour: Paraffinic
Odour threshold: Data not available
pH: Not applicable.
Initial Boiling Point and Boiling Range: Typical 162 - 192 °C / 324 - 378 °F 155 - 210 °C / 311 - 410 °F
Melting / freezing point: Not applicable.
Flash point: Typical 41 - 42 °C / 106 - 108 °F (Abel)
Upper / lower Flammability or Explosion limits: 0.7 - 6.5 % (V)
Auto-ignition temperature: 296 °C / 565 °F (ASTM E-659) 245 °C / 473 °F (DIN 51794)
Vapour pressure: Typical 370 Pa at 20 °C / 68 °F Typical 110 Pa at 0 °C / 32 °F Typical 1,800 Pa at 50 °C / 122 °F
Relative Density: 0.79 at 15 °C / 59 °F
Density: Typical 783 kg/m3 at 15 °C / 59 °F (ASTM D-4052)
Water solubility: Insoluble.
Solubility in other solvents: Aromatics Miscible. Aliphatics Miscible.
n-octanol/water partition coefficient (log Pow): 3.7 - 6.7
Dynamic viscosity: Data not available
Kinematic viscosity: Typical 1.08 mm2/s at 25 °C / 77 °F
Vapour density (air=1): Data not available
Electrical conductivity: Typical 0.01 pS/cm at 20 °C / 68 °F (ASTM D-4308)
Coefficient of expansion: Typical 0.0008 / °C
Dielectric constant: Typical 2.1 at 20 °C / 68 °F
Material Safety Data Sheet

Refractive index: Typical 1.434 at 20 °C / 68 °F (ASTM D-1218)
Reaction with water: Not applicable.
Saturated Vapour concentration (in air): Typical 21 g/m3 (estimated value(s))
Volatile organic carbon content: Typical 85 % (EC/1999/13)
Evaporation rate (nBuAc=1): 0.16 (ASTM D 3539, nBuAc=1) 80 (DIN 53170, di-ethyl ether=1)
Surface tension: Typical 26.4 mN/m at 20 °C / 68 °F (ASTM D-971)
Molecular weight: 140 g/mol
Decomposition: Note.: Stable under normal conditions of use.
Flammability: Data not available

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of use.
Possibility of Hazardous Reactions: Data not available
Conditions to Avoid: Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials: Strong oxidising agents.
Hazardous Decomposition Products: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Sensitivity to Static Discharge: Data not available

11. TOXICOLOGICAL INFORMATION

Basis for Assessment: Information given is based on product testing, and/or similar products, and/or components.
Likely Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity: Low toxicity: LD50 > 5000 mg/kg, Rat
Acute Dermal Toxicity: Expected to be of low toxicity: LD50 > 5000 mg/kg, Rat
Acute Inhalation Toxicity: Low toxicity: LC50 greater than near-saturated vapour concentration, 4 h, Rat
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Skin Corrosion/Irritation: Causes mild skin irritation. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Serious Eye Damage/Irritation: Essentially non-irritating to eyes.
Respiratory Irritation: Inhalation of vapours or mists may cause irritation to the...
respiratory system.

**Respiratory or Skin Sensitisation**

Not a skin sensitiser.

**Repeated Dose Toxicity**

Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. Central nervous system: repeated exposure affects the nervous system. Kidney: caused kidney effects in male rats which are not considered relevant to humans.

**Aspiration Hazard**

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

**Germ Cell Mutagenicity**

Not expected to be mutagenic.

**Carcinogenicity**

An increased tumour incidence has been observed in experimental animals; the significance of this finding to man is unknown. (Ethylbenzene)

**Reproductive and Developmental Toxicity**

Causes foetotoxicity in animals at doses which are maternally toxic. Not expected to impair fertility.

### 12. ECOLOGICAL INFORMATION

**Basis for Assessment**

Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

**Acute Toxicity**

- **Fish**: Expected to be harmful: $10 < \text{LC/EC/IC}_{50} <= 100 \text{ mg/l}$
- **Aquatic Invertebrates**: Expected to be harmful: $10 < \text{LC/EC/IC}_{50} <= 100 \text{ mg/l}$
- **Algae**: Expected to be toxic: $1 < \text{LC/EC/IC}_{50} <= 10 \text{ mg/l}$
- **Microorganisms**: Expected to be harmful: $10 < \text{LC/EC/IC}_{50} <= 100 \text{ mg/l}$

**Mobility**

Floats on water.

**Persistence/degradability**

Expected to be readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.

**Bioaccumulative Potential**

Contains components with the potential to bioaccumulate.

**Other Adverse Effects**

In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

### 13. DISPOSAL CONSIDERATIONS

**Material Disposal**

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in
Material Safety Data Sheet

Container Disposal: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleared drums. Send to drum recoverer or metal reclamer.

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Regulated
Class: 3
Packing group: III
Hazard identification no.: 30
UN No.: 1300
Danger label (primary risk): 3
Proper shipping name: TURPENTINE SUBSTITUTE

IMDG
Identification number: UN 1300
Proper shipping name: TURPENTINE SUBSTITUTE
Class / Division: 3
Packing group: III
Marine pollutant: No

IATA (Country variations may apply)
UN No.: 1300
Proper shipping name: Turpentine substitute
Class / Division: 3
Packing group: III

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

AICS: y
DSL: y
INV (CN): y
EINECS: y 265-185-4
KECI (KR): y KE-25620
PICCS (PH): y
TSCA: y


16. OTHER INFORMATION

MSDS Version Number: 1A

MSDS Effective Date: 01-May-09

MSDS Revisions: A vertical bar (|) in the left margin indicates an amendment from the previous version.


Uses and Restrictions: Industrial Solvent. Restricted to professional users.

MSDS Distribution: The information in this document should be made available to all who may handle the product.

Disclaimer: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.