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

Product Name: Xylene
Product Uses: Industrial solvent.
Manufacturer/Supplier: TOP Solvent Company Limited
555/1 Energy Complex Building A, 11th Floor
Viphavadi Rangsit Road Chatuchak, Bangkok 10900
Thailand
Telephone: +66 2 299 0003 or +66 2 797 2993
Fax: +66 2 797 2983
Emergency Telephone Number: +66 2 299 0003 [working hours] or
                             +66 38 683090 ext.103 [out of working hours]
Other Information: TOPSol is a trademark owned by TOP Solvent Company Limited

2. HAZARDS IDENTIFICATION

GHS Classification
Flammable liquids, Category 3
Acute toxicity (Oral), Category 5
Acute toxicity (Dermal), Category 4
Acute toxicity (Inhalation), Category 4
Skin irritation, Category 2
Eye irritation, Category 2A
Carcinogenicity, Category 2
Aspiration hazard, Category 1
Specific target organ toxicity (single exposure), Category 3
(Respiratory system)
Specific target organ toxicity (repeated exposure), Category 2
(Auditory system)
Aquatic toxicity (Acute), Category 2

GHS label elements
Symbol(s)
Signal words
: Danger

GHS Hazard Statements

PHYSICAL HAZARDS:
H226: Flammable liquid and vapor.

HEALTH HAZARDS:
H303: May be harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H351: Suspected of causing cancer
H373: May cause damage to organs or organ system through prolonged or repeated exposure.

ENVIRONMENTAL HAZARDS:
H401: Toxic to aquatic life.

GHS Precautionary statements

Prevention
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.

Response
P301+P310: IF SWALLOWED: Immediately call a POISON
CENTER or doctor/physician.
P331: Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P322: Specific measures (see details on this label).
P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P363: Wash contaminated clothing before reuse.
P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P370+P378: In case of fire: Use appropriate media for extinction.

Storage
P403+P235: Store in a well-ventilated place. Keep cool.
P405: Store locked up.

Disposal
P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity : Xylene
Synonyms : Mixed Xylene, Solvent Xylene
CAS No. : 1330-20-7
EINECS No. : 215-535-7

Classification of components according to GHS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
<th>Conc. (%)</th>
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</thead>
<tbody>
<tr>
<td>Xylene, Mixed Isomers</td>
<td>1330-20-7</td>
<td>40</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>60</td>
</tr>
</tbody>
</table>
Non-aromatic hydrocarbons | < 2

Additional Information: Concentration data is a typical data, the actual concentration varies based on operating conditions.

4. FIRST AID MEASURES

General Information: Keep victim calm. Obtain medical treatment immediately.

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

Skin Contact: Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

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. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3° C), shortness of breath, chest congestion or continued coughing or wheezing. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Give nothing by mouth. Do not induce vomiting.

Notes to physician

Most important symptoms/effects, acute & delayed

Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.

If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.

The onset of respiratory symptoms may be delayed for several
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hours after exposure. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Auditory system effects may include temporary hearing loss and/or ringing in the ears.

Immediate medical attention, special treatment: Potential for chemical pneumonitis. Potential for cardiac sensitization, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

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

Extinguishing Media: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

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

Protective Equipment for Firefighters: Wear full protective clothing and self-contained breathing apparatus.

Other Advice: Keep adjacent containers cool by spraying with water

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations. Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal.

Personal Precautions, Protective Equipment and: Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low
Emergency Procedures
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 vapor 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 (earth) all equipment. Ventilate contaminated area thoroughly.

Methods and material for containment and clean up:
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.
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.

Additional Advice:
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained.
The vapor is heavier than air, spreads along the ground and distant ignition is possible. Vapor may form an explosive mixture with air. See Chapter 13 for information on disposal.

7. HANDLING AND STORAGE
General Precautions: Avoid breathing vapours or contact with material. Only use...
Precautions for safe Handling:

Avoid inhaling vapor and/or mists. Avoid contact with skin, eyes, and clothing. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. 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. Handling Temperature: Ambient.

Conditions for safe Storage:

Bulk storage tanks should be diked (bunded). Vapor from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapor treatment system. Must be stored in a diked (bunded) well ventilated area, away from sunlight, ignition sources and other sources of heat. 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. The vapor is heavier than air. Beware of accumulation in pits and confined spaces. Storage Temperature: Ambient.

Product Transfer:

Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. 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. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
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**Recommended Materials**: For containers, or container linings use mild steel, stainless steel.

**Unsuitable Materials**: Natural, butyl, neoprene or nitrile rubbers.

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

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

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

**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>
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<tbody>
<tr>
<td>Ethylbenzene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>20 ppm</td>
<td>87</td>
<td></td>
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<tr>
<td>Xylene, Mixed Isomers</td>
<td>ACGIH</td>
<td>TWA</td>
<td>100 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Source</th>
<th>Hazard Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>IARC</td>
<td>possibly carcinogenic to humans (Group 2B)</td>
</tr>
</tbody>
</table>

**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: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Firewater monitors and deluge systems are recommended. 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 vapors [boiling point >65 °C (149 °F)] meeting EN14387. Where respiratory protective equipment is required, use a fullface mask. 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: Viton. Incidental contact/Splash protection: Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. 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**

Chemical splash goggles (chemical monogoggles). Approved to EU Standard EN166, AS/NZS:1337.

**Body protection**

Chemical resistant gloves/gauntlets, boots, and apron. Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood.

**Thermal hazards**

Not applicable

**Monitoring Methods**

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapor.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless Liquid.
Odor: Aromatic
Odor threshold: 0.27 ppm
pH: Not applicable
Boiling point: Typical 136 - 145 °C / 277 - 293 °F
Melting / freezing point: > -48 °C / -54 °F
Flash point: Typical 23 - 27 °C / 73 - 81 °F (Abel)
Explosion / Flammability limits in air: 1 - 7.1 % (V)
Auto-ignition temperature: 432 - 530 °C / 810 - 986 °F (ASTM E-659)
Flammability (solid, gas): Yes
Vapor pressure: Typical 4.5 kPa at 50 °C / 122 °F
  Typical 0.8 - 1.2 kPa at 20 °C / 68 °F
  Typical 0.2 kPa at 0 °C / 32 °F
Density: Typical 870 kg/m³ at 15 °C / 59 °F (ASTM D-1298)
Water solubility: 0.175 kg/m³
n-octanol/water partition coefficient (log Pow): 3.12 - 3.2
Decomposition temperature: Note: Stable under normal conditions of use, Reacts violently with strong oxidizing agents.
Dynamic viscosity: Data not available.
Kinematic viscosity: < 0.9 mm²/s at 20 °C / 68 °F
Vapor density (air=1): 3.7
Evaporation rate (nBuAc=1): 13.5 (DIN 53170, di-ethyl ether=1)
  0.76 (ASTM D 3539, nBuAc=1)
Surface tension: Typical 28.7 mN/m at 20 °C / 68 °F (ASTM D-971)
Molecular weight: 106 g/mol

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions of use. Reacts violently with strong oxidizing agents.
Conditions to Avoid: Avoid heat, sparks, open flames and other ignition sources.
Prevent vapor accumulation.

Incompatible materials: Strong oxidizing 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.

Possibility of hazardous Reactions: Data not available.

Sensitivity to Static Discharge: Yes

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure: Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

Acute Toxicity
   Acute Oral Toxicity: May be harmful if swallowed. LD50 >2000 - <=5000 mg/kg.
   Acute Dermal Toxicity: Harmful in contact with skin.
   Acute Inhalation Toxicity: Harmful if inhaled. LC50 >10.0 - <=20.0 mg/l.

Skin corrosion/irritation: Cause skin irritation.

Serious eye damage/irritation: Cause serious eye irritation.

Respiratory Irritation: Inhalation of vapors or mists may cause irritation to the respiratory system.

Respiratory or skin Sensitization: Not expected to be a skin sensitizer.

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

Germ cell mutagenicity: Not mutagenic.

Carcinogenicity: Suspected of causing cancer (Ethylbenzene : IARC = 2B)

Reproductive and Developmental Toxicity: Does not impair fertility. Not expected to be a development toxicant

Specific target organ: High concentration may cause central nervous system
toxicity - single exposure  
depression resulting in headache, dizziness and nausea, 
continued inhalation may result in unconsciousness and/or 
death. Inhalation of vapors or mists may cause irritation to 
the respiratory system.
Specific target organ toxicity - repeated exposure  
Harmful: danger of serious damage to health by prolonged 
exposures through inhalation.
Additional Information  
Exposure to very high concentrations of similar materials 
has been associated with irregular heart rhythms and 
cardiac arrest.

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  
Toxic: LC/EC/IC50 >1 - <=10 mg/l
Aquatic Invertebrates  
Toxic: LC/EC/IC50 >1 - <=10 mg/l
Algae  
Toxic: LC/EC/IC50 >1 - <=10 mg/l
Microorganisms  
Practically non toxic: LC/EC/IC50 >100 mg/l

Chronic Toxicity
Fish  
NOEC/NOEL > 1.0 - <= 10 mg/l (test data)
Aquatic Invertebrates  
NOEC/NOEL expected to be > 0.1- <= 1.0 mg/l (test data)
Mobility  
Floats on water, adsorbs to soil and has low mobility.
Persistence/degradability  
Readily biodegradable.
Bioaccumulative potential  
Does not bioaccumulate significantly.
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 drains or in water
courses. Waste product should not be allowed to contaminate soil or water.

**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 uncleaned drums. Send to drum recoverer or metal reclaimer.

**Local Legislation**

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

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### 14. TRANSPORT INFORMATION

**Land (as per ADR classification)**: Regulated

- **Class**: 3
- **Packing group**: III
- **Hazard identification no.**: 30
- **UN No.**: 1307
- **Danger label (primary risk)**: 3
- **Proper shipping name**: Xylenes
- **Environmentally Hazardous**: No

**IMDG**

- **Identification number**: UN 1307
- **Proper shipping name**: XYLENES
- **Class / Division**: 3
- **Packing group**: III
- **Marine pollutant**: No

**IATA (Country variations may apply)**

- **UN No.**: 1307
- **Proper shipping name**: Xylenes
- **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.
Chemical Inventory Status

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<td>215-535-7</td>
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<td>KECI (KR)</td>
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<tr>
<td>PICCS (PH)</td>
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</tbody>
</table>

16. OTHER INFORMATION

Uses and Restrictions: Industrial Solvent. Raw material for use in the chemical industry. 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.