

**Material Safety Data Sheet**

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

**Material Name** : Xylene

**Uses** : Solvent. Raw material for use in the chemical industry.

**Product Code** : Q9151, T1404, Q9156, Q5891, Q9306

**Supplier** : Chemisol Inc.  
3/F Johnson Bldg. #5 D. Muñoz St.  
Tandang Sora, Quezon City  
Philippines

**Telephone** : (632) 9385388  
**Fax** : (632) 9383818

**Emergency Telephone Number** : (632) 9385388

**2. HAZARDS IDENTIFICATION**

**GHS Classification** : Flammable Liquid: Category no. 3  
Skin Irritation: Category no. 2  
Acute toxicity: Category no. 5 (oral)  
Acute toxicity: Category no. 4 (inhalation)  
Acute toxicity: Category no. 4 (dermal)  
Serious Eye Damage /Eye Irritation: Category no. 2A  
Aspiration Hazard: Category no. 1  
Specific Target Organ Toxicity: Category no. 3 (single exposure)  
Respiratory Irritation  
Specific Target Organ Toxicity: Category no. 2 (repeated exposure)  
Auditory system  
Acute Aquatic Toxicity: Category no.2

**GHS Label Element Symbol(s)** :



**Signal Words**  
**GHS Hazard statements**

: Danger

: **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.  
H332: Harmful if inhaled.  
H319: Causes serious eye irritation.

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**GHS Precautionary Statements  
Prevention**

H335: May cause respiratory irritation.  
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.  
ENVIRONMENTAL HAZARDS:  
H401: Toxic to aquatic life.

**Response**

: 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.  
: P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE 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.  
: P403+P235: Store in a well-ventilated place. Keep cool.  
P405: Store locked up.  
: P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

**Storage**

**Disposal**

**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.  
Slightly irritating to respiratory system.

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Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s):  
Auditory system.  
Central nervous system (CNS).  
Slightly irritating to the eye.

**Aggravated Medical Condition**

: Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material:  
Central nervous system (CNS). Skin. Auditory system.  
Eyes. Respiratory system.

**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

**Material Formal Name** : Benzene, dimethyl  
**Synonyms** : Dimethyl benzenes  
Xylene S  
Mixed Xylenes  
  
**CAS No.** : 1330-20-7  
**INDEX No.** : 601-022-00-9  
**EINECS No.** : 215-535-7

**Hazardous Components**

<b>Chemical Name</b>	<b>CAS</b>	<b>EINECS</b>	<b>Symbol(s)</b>	<b>R-phrase(s)</b>	<b>Conc.</b>
Ethylbenzene	100-41-4	202-849-4	F, Xn	R11; R20	10.00- <= 30.00 %W

**Additional Information** : Refer to Chapter 16 for full text of EC R-phrases.

**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  
**Advice to Physician** : Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal. 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.

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## 5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

<b>Specific Hazards</b>	: The vapour 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.
<b>Extinguishing Media</b>	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Unsuitable Extinguishing Media</b>	: Do not use water in a jet.
<b>Protective Equipment for Firefighters</b>	: Wear full protective clothing and self-contained breathing apparatus.
<b>Additional Advice</b>	: Keep adjacent containers cool by spraying with water.

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## 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.

<b>Protective Measures</b>	: Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low areas. 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 low 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. Ventilate contaminated area thoroughly.
<b>Clean Up Methods</b>	: For large liquid spills (>1 drum), transfer by mechanical means such as vacuum truck to a salvage tank 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 labeled, 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.
<b>Additional Advice</b>	: 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 vapour is heavier than air, spreads along the ground and distant ignition if possible. Vapour may form an explosive mixture with air. See Chapter 13 for information on disposal.

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## 7. HANDLING AND STORAGE

<b>General Precautions</b>	: Avoiding breathing vapours or contact with material. Only use in well ventilated
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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.

**Handling** : Avoid inhaling vapour 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 ( $\leq 1$  m/sec. until fill pipe submerged to twice its diameter, then  $\leq 7$  m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Handling Temperature: Ambient.

**Storage** : Bulk storage tanks should be diked (bunded). Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour 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 vapour 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 ( $\leq 1$  m/sec. until fill pipe submerged to twice its diameter, then  $\leq 7$  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.

**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 vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

**Additional Information** : Ensure that all local regulations regarding handling and storage facilities are followed.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Occupational Exposure Limits**

Material	Source	Type	ppm	mg/m3	Notation
Ethylbenzene	ACGIH	TWA	100 ppm		
	ACGIH	STEL	125 ppm		
	PH OEL	CEIL_PH	100 ppm	435 mg/m3	
Xylene, Mixed Isomers	ACGIH	TWA	100 ppm		
	ACGIH	STEL	150 ppm		
	PH OEL	TWA_PH		0.1 mg/m3	
	PH OEL				No data available

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**Additional Information** : Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

<b>Material</b>	<b>Sources</b>	<b>Hazards Designation</b>
Ethylbenzene	ACGIH	Confirmed animal carcinogen with unknown relevance to humans.
Xylene, Mixed Isomers	ACGIH	Not classifiable as a human carcinogen.

**Exposure Control** : 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.

**Personal Protective Equipment** : 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 the 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: 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 placed. Personal hygiene is a key element of effective hand care. Gloves must be only 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).

**Protective Clothing** : 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.

**Monitoring Method** : 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 appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of analytical Methods <http://www.cdc.gov/niosh/nmam/nmammenu.html> Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods

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<http://www.osha-slc.gov/dts/sltc/methods/toc.html> Health and Safety Executive (HSE), UK: Methods for the determination of Hazardous Substances  
<http://www.hsl.gov.uk/search.htm> Berufsgenossenschaftliches Institut für Arbeitssicherheit (BIA), Germany <http://www.hvbg.de/d/bia/pub/grl/grle.htm>  
L'Institut National de Recherche et de Sécurité, (INRS), France  
<http://www.inrs.fr/indexnosdoss.html>

### Environmental Exposure Controls

: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Colourless Liquid.
Odor	: Aromatic
Odor threshold	: 0.27 ppm
pH	: Not applicable.
Boiling point	: Typical 136- 145 °C / 277- 293 °F
Flash point	: Typical 21- 27 °C / 70- 81 °F (Abel)
Explosion/ Flammability limits in air	: 1- 7.1 % ( V)
Auto-ignition	: 432- 530 °C / 810- 986 °F (ASTM E-659)
Vapour 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 87 kg/m <sup>3</sup> at 15 °C / 59 °F (ASTM D-1298)
Water solubility	: 0.175 kg/m <sup>3</sup>
Solubility in other solvents	: Miscible.
n-octanol/ water partition coefficient (log Pow)	: 3.12- 3.2
Kinetic viscosity	: < 0.9 mm <sup>2</sup> /s at 20 °C / 68 °F
Vapour density (air=1)	: 3.7
Dielectric constant	: Typical 2.6
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

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## 10. STABILITY AND REACTIVITY

<b>Stability</b>	: Stable under normal conditions of use. Reacts with strong oxidizing agents.
<b>Conditions to Avoid</b>	: Avoid heat, sparks, open flames and other ignition sources. Prevent vapour accumulation.
<b>Materials to Avoid</b>	: Strong oxidizing agents.
<b>Hazardous Decomposition Products</b>	: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquid and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

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## 11. TOXICOLOGICAL INFORMATION

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<b>Basis for Assessment</b>	: Information given is based on product testing.
<b>Acute Oral Toxicity</b>	: Low Toxicity: LD50 >2000 mg/kg, Rat Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
<b>Acute Dermal Toxicity</b>	: Low Toxicity: LD50 >2000 mg/kg Classified as harmful under EC criteria, Rabbit
<b>Acute Inhalation Toxicity</b>	: Low Toxicity: LC50 >20mg/l/ 4 hours, Rat Classified as harmful under EC criteria. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
<b>Skin Irritation</b>	: Irritating to skin.
<b>Eye Irritation</b>	: Moderately irritating to eyes (but insufficient to classify).
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation to the respiratory system.
<b>Sensitization</b>	: Not expected to be a skin sensitizer.
<b>Repeated Dose Toxicity</b>	: Central nervous system: repeated exposure affects the nervous system. Effects were seen at high doses only. 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.
<b>Mutagenicity</b>	: Not mutagenic.
<b>Carcinogenicity</b>	: Mixed xylenes contain ethylbenzene, which has shown limited evidence of a carcinogenic effect.
<b>Reproductive and Developmental Toxicity</b>	: Does not impair fertility. : Causes foetotoxicity in animals at doses which are maternally toxic.
<b>Additional Information</b>	: Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

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## 12. ECOLOGICAL INFORMATION

<b>Acute Toxicity</b>	
<b>Fish</b>	: Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
<b>Aquatic Invertebrates</b>	: Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
<b>Algae</b>	: Toxic: $1 < LC/EC/IC50 \leq 10$ mg/l
<b>Mobility</b>	: If product enters soil, it will be highly mobile and may contaminate groundwater. Floats on water.
<b>Persistence/degradability</b>	: Readily biodegradable. Oxidizes rapidly by photo-chemical reactions in air.
<b>Bioaccumulation</b>	: Does not bioaccumulate significantly.
<b>Other Adverse Effects</b>	: In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

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## 13. DISPOSAL CONSIDERATION

<b>Material Disposal</b>	: 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.
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<b>Container Disposal</b>	: 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.
<b>Local Legislation</b>	: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

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## 14. TRANSPORT INFORMATION

### IMDG

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

### IATA

UN No.	: 1307
Proper shipping name	: Xylene
Class/ Division	: 3
Packing group	: III

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## 15. REGULATORY INFORMATION

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

EC Label Name	: XYLENE
EC Label/EC Number	: 215-535-7
EC Classification	: Highly flammable. Harmful.
EC Annex I Number	: 601-022-00-9
EC Symbols	: Xn Harmful.
EC Risk Phrases	: R10 Flammable R20/21 Harmful by inhalation and in contact with the skin. R38 Irritating to skin.
EC Safety Phrase	: S25 Avoid contact with eyes.
AICS	: Listed.
DSL	: Listed.
INV (CN)	: Listed.
ENCS (JP)	: Listed. (3)- 3
TSCA	: Listed.
EINECS	: Listed. 215-535-7
KECI (KR)	: Listed. 97-1-275
KECI (KR)	: Listed. KE-35427
PICCS (PH)	: Listed.

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## 16. OTHER INFORMATION

R-phrase(s)

R10	Flammable.
R11	Highly flammable.

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R20 Harmful by inhalation.  
R20/21 Harmful by inhalation and in contact with skin.  
R38 Irritating to skin.

**MSDS Version Number** : 2.3

**MSDS Effective Date** : 28.04.2012

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

**Uses and Restrictions** : Solvent.

Raw material for use in the chemical industry.

**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.