Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name: Xylene (mixed isomers)
Synonyms: dimethylbenzene; methyltoluene;
CAS#: 1330-20-7
Europe EC#: 215-535-7
Product Uses: solvent, diluent, chemical feedstock, gasoline octane improver

Company: Megaloid Laboratories Limited
2221 Ninth Line Oakville, ON L6H 7G7
Phone: 905-337-7411 / Fax: 905-337-1686

EMERGENCY INFORMATION
Canada Call CANUTEC (collect) (613) 996-6666
U.S.A. Call CHEMTREC (800) 424-9300

2. HAZARDS

GHS Class
(Category)
DANGEROUS (3)
WARNING (3)
WARNING (3)
WARNING (2)
WARNING (3)
DANGEROUS (1)
WARNING (2)

Signal Words
DANGER
WARNING
WARNING
WARNING
WARNING
DANGER
WARNING

Hazard Statements
flammable
liquid &
vapour
(11226)
harmful if
ingested &
in contact with
skin (H330, H312)
harmful if
inhaled
(H332)
causes skin
irritation
(H315)
may cause
drowsiness
or dizziness
(H336)
may be fatal
if swallowed &
enters airways
(H304)
suspected of
damaging fertility
or the unborn
child (H361)

GHS Precautionary Statements for Labelling
P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.
P240 Ground or bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P262 Do not get in eyes, on skin or on clothing.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear eye protection, protective gloves and clothing of butyl or “Viton”.
P370, P378 In case of fire use alcohol-resistant foam to extinguish.
P305, P351, P338 If in eyes, rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P304, P340 If inhaled remove person to fresh air and keep comfortable for breathing.

Canada – WHMIS
Key:

B 2, D 2A
B 2 – Flash Point < 38°C, B 3 – Flash Point > 38°C & < 93°C
D 1 – Immediately Toxic, D 2 – Chronic Toxicity
C – Oxidising Substance, E – Corrosive, F – Reactive Substance

Please ensure that this SDS is given to, and explained to people using this product.

Member: Responsible Distribution Canada
3. COMPOSITION

<table>
<thead>
<tr>
<th>1,2-Dimethyl Benzene</th>
<th>%</th>
<th>TWAEV / TLV</th>
<th>LD50 (mg/kg)</th>
<th>LD10 (mg/kg)</th>
<th>LC50 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>ppm / mg/m³</td>
<td>ORAL</td>
<td>SKIN</td>
<td>INHALATION</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>435</td>
<td>&gt;3520</td>
<td>&gt;4350</td>
<td>&gt;6250</td>
</tr>
</tbody>
</table>

*The mixed isomers usually contain up to 20% Ethylbenzene (CAS# 106-41-4).

4. FIRST AID

SKIN: Wash with soap & plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION: Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim’s head below hips to prevent inhalation of vomited material. Seek medical help promptly.

*Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.*

5. FIREFIGHTING & FLAMMABILITY

Combustion Products: carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments including toxic aldehydes.
Firefighting Precautions: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames, firefighters must wear SCBA.
Static Charge Accumulation: readily accumulates a static charge on agitation or pumping which can cause ignition.

6. ACCIDENTAL RELEASE MEASURES

**Serious Fire Potential: blanket spill with foam as a precaution against accidental ignition. Take great care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.**

Leak Precaution: dyke to control spillage and prevent environmental contamination.
Handling Spill: ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal.

7. HANDLING & STORAGE

Store in a cool, dry environment, away from sources of ignition, heat and oxidising agents. Use only non-sparking bronze or aluminium hand tools. All electrical & mechanical equipment (including lighting, switchgear & forklift trucks) used with or around this product must be explosion-proof. Always ground or electrically bond the source container, receiving container & transfer pump before transferring contents. Avoid splashing by ensuring that the product nozzle is below the surface in the receiving container. Empty containers may contain a flammable / explosive vapour. Containers, empty or full, must be tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator with organic vapour cartridge.

Never cut, drill, weld or grind on or near this container. Avoid contact with skin & wash work clothes frequently. An eye bath & safety shower must be available near the workplace.

**WHEN FILLING BULK STORAGE TANKS WITH THIS PRODUCT, IN ADDITION TO NORMAL GROUNDING PROCEDURES, READ THE FOLLOWING:**
This product may form an explosive mixture inside a bulk storage tank. Prior to filling a bulk storage tank with this product, consider ventilating the headspace with nitrogen. In addition, consider asking the supplier to put an anti-static additive in the product when you order. If the bulk tank has a floating product level indicator, this should be inspected regularly. The float MUST HAVE a firmly fixed ground wire connecting it to its support cable. This connection must be free of corrosion.

Consult NFPA 77, 2007: “Recommended Practice on Static Electricity”

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8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV 100ppm / 433mg/m³
ACGIH TLV 100ppm / 433mg/m³
OSHA PEL 100ppm / 435mg/m³
Ontario STEV 150ppm / 650mg/m³
ACGIH STEL 150ppm / 650mg/m³
OSHA STEL 150ppm / 650mg/m³

Ventilation: mechanical ventilation may be required to control airborne titre; depending on handling procedures.

Hands: wear “Viton” gloves – other types may also protect; consult supplier to confirm suitability

Eyes: safety glasses with side shields – always protect the eyes

Clothing: wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing.

9. PHYSICAL PROPERTIES

Odour & Appearance: clear, colourless liquid with aromatic (gasoline-like) odour

Odour Threshold: 5.4ppm – good warning properties relative to the TLV

Vapour Pressure: 5.25mmHg / 0.7kPa (20°C / 68°F) – typical value

Flash Point: 17°C / 63°F (closed cup); 32°C / 90°F (open cup)

Autoignition Temperature: 463°C / 867°F

Flammable Limits: 1% – 6%

Evaporation Rate (Butyl Acetate = 1): 0.58

Flammability (solid, gases): no data available

Vapour Density (air = 1): 3.7

Boiling Range: 137-145°C / 279-293°F – varies according to the proportion of isomers present

Freezing Point: -55°C / -69°F – varies according to the proportion of isomers present

Specific Gravity: 0.86 (20/20°C) – typical value

Water Solubility: 175milligrams per litre (20°C / 68°F)

Also soluble in: most organic solvents

Log P(oct) (Octanol/H₂O partition): 3.15 – typical value

Viscosity: 0.75centipoise (20°C / 68°F) – typical value

pH: none – (does not liberate hydrogen ions when dissolved)

Conversion Factor: 1ppm = 4.33mg/m³

Molecular Weight: 106grams per mole

10. REACTIVITY

Dangerously Reactive With: strong oxidising agents; nitric acid or dichlorohydrantoin can cause explosion; molten sulphur, halogens

Also Reactive With: attacks some plastics (eg: PVC) and rubbers

Stability: stable; will not polymerize

Decomposes in Presence of: not known

Decomposition Products: none apart from Hazardous Combustion Products

Sensitive to Mechanical Impact: no

11. TOXICITY

Effects, Acute Exposure

Skin Contact: moderately irritating; redness, swelling, burning sensation (all rapidly & readily reversible)

Skin Absorption: some; no toxic effects likely by this route

Eye Contact: liquid is a mild irritant; vapour irritating above 200ppm to some people

Inhalation: above 100ppm objectionable; above 200ppm irritating; above 300ppm, dizziness, drowsiness, intoxication, nausea; eventual pulmonary oedema if sufficient product is inhaled

Ingestion: dizziness, drowsiness, intoxication, nausea, vomiting may occur if sufficient is ingested

LD₅₀ (oral): 3520 – 8700mg/kg (rat), 5440mg/kg (mouse)¹, 3760, 4300 & 8400mg/kg (rat)¹

LD₅₀ (skin): 4350mg/kg (rabbit), also >1760mg/kg (rabbit)¹ – no mortality

LC₅₀ (inhalation): 6350 & 11,000ppm (rat), >2190 & >2675ppm (mouse)¹, 6250, 6350 & 6700ppm (rat)¹

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11. **TOXICITY, cont’d**

**Effects, Chronic Exposure**
- **General**: Prolonged exposure may cause dermatitis due to powerful degreasing action; may damage liver & kidneys (may be due to other chemicals in the workplace); headaches, insomnia, depression attributed to xylene vapour exposure (equivocal evidence); hearing loss in rats – also reported in people
- **Sensitising**: Not a sensitizer in humans or animals; very few cases of sensitisation have been reported
- **Carcinogen/Tumorigen**: Xylene is not considered a tumorigen or a carcinogen in humans or animals; however, ethylbenzene is a mouse (renal) carcinogen on prolonged (2 years) inhalation; however, neither the IARC, ACGIH or NTP considers that xylene (mixed isomers) can be listed as a human carcinogen
- **Reproductive Effect**: Fetotoxic in rodents on prolonged maternal exposure to 500 ppm; no known effect in humans; xylene can enter human breast milk
- **Mutagen**: No known effect on humans or animals
- **Synergistic With**: Not known

12. **ECOLOGICAL INFORMATION**

- **Bioaccumulation**: Cannot bioaccumulate – biological ½-life in vertebrates is measured in hours
- **Biodegradation**: Biodegrades readily in the presence of oxygen; 72% in 20 days in sewage sludge; also 70% in 10 days
- **Abiotic Degradation**: Xylene reacts with atmospheric hydroxyl radicals; ½-life in air is 16-28 hours
- **Mobility in soil, water**: Sufficiently water soluble to move readily in soil & water

**Aquatic Toxicity**
- **LC₅₀(Fish, 96hr)**: 780 mg/litre (Cyprinus carpio), 2.8, 3.5-17.3 (Oncorhynchus mykiss), 86 mg/litre (Leuciscus idus), 26.7 mg/litre (Pimephales promelas), 9.9 mg/litre (Bryconamericus heringii)
- **EC₅₀(Crustacea, 48hr)**: 0.8 mg/litre (Gammarus lacustris), 1.0, 2.2, 3.6 & 3.8 mg/litre (Daphnia magna)
- **EC₅₀(Algae)**: 8.5 mg/litre (Palaemonetes pugio), >3.4 mg/litre (Ceriodyphnia Dubia)
- **EC₅₀(Bacteria)**: 10 mg/litre (Cricospheara carterae), 2.2 & 3.9 mg/litre (Pseudokirchnerella subcapitata)

13. **DISPOSAL**

- **Waste Disposal**: *Do not flush to sewer*. Recycle solvent if possible; may be incinerated in approved facility
- **Containers**: Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
- **Pails**: Must be vented and thoroughly dried prior to crushing and recycling.
- **IBC’s (intermediate bulk containers)**: Polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years.

*Never cut, drill, weld or grind on or near this container, even if empty*

14. **TRANSPORT CLASSIFICATION**

- **Canada TDG**: PIN - UN - 1307
- **AND**: Shipping Name - xlyenes
- **U.S.A. 49 CFR**: Class & Packing Group - 3 (II)
- **Marine Pollutant**: Not a marine pollutant
- **ERAP Required**: NO

15. **REGULATIONS**

- **Canada DSL**: On inventory
- **U.S.A. TSCA**: On inventory
- **Europe EINECS**: On inventory

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15. REGULATIONS, cont’d.

U.S.A. Regulations:

Allowable Uses: Xylene is exempted from the requirement of a tolerance when used as an aquatic herbicide applied to irrigation conveyance systems in accordance with the following conditions: (a) It is to be used only in programs of the Bureau of Reclamation, US Department of Interior and cooperating water user organizations. (b) It is to be applied as an emulsion at an initial concentration not to exceed 750 ppm. (c) It is not to be applied when there is any likelihood that the irrigation water will be used as a source of raw water for a potable water system or where return flows of such treated irrigation water intoceiving rivers and streams would contain residues of xylene in excess of 10 ppm. (d) Xylene to be used as an aquatic herbicide shall meet the requirement limiting the presence of polynuclear aromatic hydrocarbons as listed in 172.250 of HCS 21, Code of Federal Regulations. Results of xylene (meeting the specifications listed in 21 CFR 173.310(b)(6)) are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use solvent, co-solvent. Limit in pesticide formulations for grain storage only. Results of xylene are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use solvent, co-solvent.

OSHA Standards: Farmworker Exposure Limits: Table Z-2 4-hr Time Weighted Avg. 100 ppm (0.05 mg/m3). Xylene (o,- m, p isomers) Vacated 1989 OSHA PEL TWA 100 ppm (0.05 mg/m3) STEL 150 ppm (0.05 mg/m3) in use in some states. Xylene (o,- m, p isomers).

Threshold Limit Values: 8-hr Time Weighted avg. TWA 8 ppm; 15 min Short Term Exposure Limit (STEL) 15 ppm Xylene (o,- m, p isomers); Biological Exposure Index (BEI) Determination: Methylhypoxanthine acats in urine; Sampling Time at end of shift, BEI 1.5 g creatinine. Xylene; Technical or Commercial Grade/ A/ Not Classifiable as a human carcinogen. Xylene (o,- m, p isomers).

Atmospheric Standards: This section promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCM). The intended effect of these standards is to require newly constructed, modified, and reconstructed HCFC process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non-air quality health and environmental impact and energy requirements. Xylene (mixed) is produced, as an intermediate or a final product, by process units covered under this subpart. Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce releases and venting of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Xylene are included on this list.

Federal Drinking Water Standards: EPA 100 ppm

Federal Drinking Water Guidelines: EPA 10,000 ppm

State Drinking Water Standards: New Jersey 1000 ppm

State Drinking Water Guidelines: Arizona 4.0 mg/L, Maine 1.4 mg/L, Minnesota 10,000 mg/L

Clean Water Act Requirements: Xylene (mixed) is designated as a hazardous substance under section 31(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. This designation includes any persons and industries, as well as any solutions and mixtures containing this substance.

CERCLA Reportable Quantities: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 1000 lb or 45 kg. The toll free number of the NRC is (800) 424-8802. The rule for determining when notification is required is in 40 CFR 302.4 (section IV, D.3.b).

RCRA Requirements: When xylene is a spent solvent, it is classified as a hazardous waste from a nonhazardous source, as stated in 40 CFR 264.31, and must be managed according to State and/or Federal hazardous waste regulations. As stipulated in 40 CFR 261.33, when xylene, as a commercial chemical product or manufacturing chemical intermediate or an off-specification commercial chemical product or a manufacturing chemical intermediate, becomes a waste, it must be managed according to Federal and/or State hazardous waste regulatory requirements. Also defined as a hazardous waste is any residue, contaminated soil, water, or other debris resulting from the cleanup of spills, into water or on dry land, of this waste. Generators of small quantities of this waste may qualify for partial exclusion from hazardous waste regulations (40 CFR 261.6).

FIFRA Requirements: Xylene is exempted from the requirement of a tolerance when used as an aquatic herbicide applied to irrigation conveyance systems in accordance with the following conditions: (a) It is to be used only in programs of the Bureau of Reclamation, US Department of Interior and cooperating water user organizations. (b) It is to be applied as an emulsion at an initial concentration not to exceed 750 ppm. (c) It is not to be applied when there is any likelihood that the irrigation water will be used as a source of raw water for a potable water system or where return flows of such treated irrigation water into receiving rivers and streams would contain residues of xylene in excess of 10 ppm. (d) Xylene to be used as an aquatic herbicide shall meet the requirement limiting the presence of polynuclear aromatic hydrocarbons as listed in 172.250 of HCS 21, Code of Federal Regulations. Results of xylene are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Use solvent, co-solvent. Results of xylene are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use solvent, co-solvent. Results of xylene (meeting the specifications listed in 21 CFR 173.310(b)(6)) are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use solvent, co-solvent. Limit in pesticide formulations for grain storage only. Xylene is used as an aquatic herbicide. There is only one registered pesticide product containing xylene as the active ingredient. The current label for this end use product clearly indicates that it is only for use in programs of the Bureau of Reclamation, US Department of Interior, and its cooperating water user organizations. For this assessment of xylene, occupational hazard inhalation and dermal exposures were examined. An oral NOAEL of 180 mg/kg/day was used to assess short-term risks from dermal exposures. The oral dose was converted to an equivalent dermal dose using a 100% dermal absorption factor (a conservative assumption). An inhalation NIOSH of 35.7 mg/kg/day was used to assess short-term risks from inhalation exposures. This endpoint was based on behavioral effects, and is more health protective than some other studies which have been selected such as those showing reduced body weight gain, developmental effects, or mortality, all of which were seen at higher exposure doses. Available data indicate that xylene is not a carcinogen. Due principally to its high vapor pressure, no residues of xylene are expected to occur on harvested crops as a result of application with irrigation treated waters. Thus, the Agency plans to propose revocation of the tolerance exemption for use at 40 CFR 180.102. Further, based on current and future label instructions, residues in drinking water are expected to be well below the Micro-contaminant Level (MCL) established by the Agency under the Safe Drinking Water Act. As the federal pesticide law, FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their continued use. Under this pesticide registration program, EPA examines newer health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether the use of the pesticide does not pose unreasonable risk in accordance to safer water standards, such as those described in the Food Quality Protection Act of 1996. Pesticides for which EPA has not issued Regulations Standards to the effective date of FIFRA 88 were divided into three lists based upon their potential for human exposure and other factors, with List I containing pesticides of greater concern than those on List C, and with List C containing pesticides of greater concern than those on List B. Xylene is found on List B. Case No. 3520: Pesticide type: insecticide; Case Status: OPR is reviewing data from the pesticide producer regarding its human cancer and environmental effects, or OPR issued a registration allowing the pesticide's eligibility for registration and developing the RLD document, Active ingredient (AI): xylene, AI Status: Regulators of the pesticide have not made or solicited a commitment to seek registration, conduct the risk assessment, or pay the required fines, or they have added EPA to extend their product registrations. Unless some other interest party supports them, products containing this pesticide will be cancelled.

FDA Requirements: Xylene is an indirect food additive for use only as a component of adhesives.

16. OTHER INFORMATION

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577
Data from RTECS, HSDB (Hrz. Substance Data Base), Cheminfo (CCOHS), IUCLID Databases (ESIS – European Chem. Substance Info. System), & others.
Preparation Date: April 2007 Revision Date: April 2010, April 2013, June 2014, September 2015

(1) European Chemical Agency (ECHA) dossier for Xylene:
http://apps.echa.europa.eu/registered/data/dossiers/DINS-eb5815e-cdf3-16bd-e044-014f467d031/DINS-eb5815e-cdf3-16bd-e044-0014f467d031

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