Material Safety Data Sheet

I. Product and Supplier Information

Product Name: Xylene
Product Number: 10710
Product Synonyms: Dimethyl benzene, Xylol, Xylenol, Methyl toluene
Chemical Family or Formula: Aromatic hydrocarbon C6H4 (CH3)2

Supplier: Ultra Pure Solutions, Inc.
11485 Commercial Parkway (Bldg 10)
Castroville, CA 95012
Phone: 831-632-2120
Fax: 831-632-2521
Web page: ultrapuresln@earthlink.net

II. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>SARA 313</th>
<th>Material or Component</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On? Dm %</td>
<td>%</td>
<td>RQ# TWA*</td>
</tr>
<tr>
<td>1330-20-7</td>
<td>Yes 1</td>
<td>Xylene (mixed isomers)</td>
<td>A4, BEI</td>
</tr>
<tr>
<td>95-47-6</td>
<td>Yes 1</td>
<td>o-Xylene</td>
<td>A4, BEI</td>
</tr>
<tr>
<td>108-38-3</td>
<td>Yes 1</td>
<td>m-Xylene</td>
<td>A4, BEI</td>
</tr>
<tr>
<td>106-42-3</td>
<td>Yes 1</td>
<td>p-Xylene</td>
<td>A4, BEI</td>
</tr>
</tbody>
</table>

A4=Not Classifiable as a Human Carcinogen
BEI= Biological Exposure Limit exists for this material

No component is listed in "Threshold and Biological Exposure Indices for 2001" from ACGIH except as noted above.
Components listed in Title III Sec. 313 (EPCRA) are indicated by "Yes" above.
*TWA= Time Weighted Average; STEL= Short Term Exposure Limit; WEEL= Workplace Employee Exposure Level
NE= Not Established  "On?" = Listed or not  Dm % = De Minimus for reporting

III. Hazards Identification

OSHA Hazard Classification:
- Label hazard warnings: DANGER! HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. AFFECTS CENTRAL NERVOUS SYSTEM.
- Label precautions: Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor. Wash thoroughly after handling.
- Routes of Entry: Inhalation, skin contact, ingestion

Chemical Interactions: Avoid contact with all oxidizing agents.

Medical Conditions Aggravated:
- Skin conditions, eye problems, or impaired liver, kidney or blood or respiratory function may respond negatively to exposure.

Human Threshold Response Data
- Odor Threshold: Not established
- Irritation Threshold: Not established

Hazard Category Classifications and Ratings

<table>
<thead>
<tr>
<th>Hazard Categories</th>
<th>Health</th>
<th>Fire</th>
<th>Pressure</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Delayed</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

HMIS Hazard Ratings: Health 2  Fire 3  Instability 0  Other C (Glasses, gloves, apron)
Immediate (Acute) Health Effects

Inhalation Toxicity:
Harmful if inhaled or swallowed.

Inhalation Irritation: High concentrations or prolonged exposure can cause headaches, dizziness, nausea irritation of eyes and respiratory tract, narcosis and eventually unconsciousness.

Skin Contact:
Skin contact may defat the skin and cause pain, redness, and irritation.

Skin Absorption:
May be absorbed through the skin with damage to kidneys, liver and central nervous system.

Eye Contact
Causes eye irritation and possible corneal damage.
Exposure can cause temporary or permanent blindness.

Ingestion Irritation:
Can cause sore throat, vomiting, diarrhea.

Ingestion Toxicity:
No data. See animal data in Sec. XI below.

Acute Target Organ Toxicity:
Kidneys, liver, central nervous system.

Prolonged (Chronic) Health Effects

Carcinogenicity:
This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA. Rated A4: Not classifiable as a human carcinogen.

Reproductive and Developmental Toxicity:
May cause teratogenic effects.

Sensitization:
None known.

Inhalation:
Prolonged or repeated exposure may cause more severe irritation. May cause pulmonary edema (fluid build-up in lungs).

Skin Contact:
Prolonged or repeated skin exposure may cause dermatitis.

Skin Absorption:
Reported effects from chronic exposure include damage to kidneys, liver and CNS.

Ingestion:
Chronic ingestion unlikely.

General:
Prolonged or repeated exposure may cause eye, liver, kidney or lung damage.

Chronic Target Organ Toxicity:
Skin, respiratory tract, kidney, liver.

Supplemental Health Hazard Information:
No additional health information available.

IV. First Aid

Inhalation:
Remove individual to fresh air. If not breathing, give artificial respiration or oxygen as appropriate. Seek medical attention if breathing becomes difficult.

Skin Contact:
Flush skin with water for 15 minutes and remove contaminated clothing. Wash shoes and clothing before
V. Fire Fighting Measures

Flammability Summary (OSHA):
Extremely flammable.

Flammable Properties:
Flash Point: 29°C, 84°F

Autoignition Temperature: 464°C, 867°F

Upper Flammable/Explosive Limit, % in air: 7.0
Lower Flammable/Explosive Limit, % in air: 1.0

Fire/Explosion Hazards: Extremely dangerous! Vapor can travel distances to ignition sources and flash back. Hot organic chemical vapors or mists are susceptible to sudden spontaneous combustion when mixed with air. Ignition may occur at temperatures below published autoignition or ignition temperatures. Ignition temperatures decrease with increasing vapor volume and vapor/air contact time and are influenced by pressure changes. Ignition may occur at typical elevated temperature process conditions, especially in processes operating under vacuum if subjected to the sudden ingress of air, or with sudden escape of hot vapors into outside air.

Extinguishing Media:
Water spray, foam, dry chemical or CO2

Do not allow contaminated water to enter sewers or waterways.

Fire Fighting Instructions:
In case of fire, use normal fire fighting equipment including a NIOSH approved self-contained breathing apparatus (SCBA). Use water to cool containers.

Hazardous Combustion Products:

VI. Accidental Release Measures

Personal Protection for Emergency Situations:
Evacuate the area of all unnecessary personnel. Eliminate any ignition sources until the area is determined to be free from explosion and fire hazards. Contain the release and eliminate its source if this can be done safely.

Spill Mitigation Procedures
Air Release:
Hazardous concentrations in air may be found in local spill area and immediately downwind. Vapors may be suppressed by the use of water fog. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Do not flush to sewer! US regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of stipulated quantities. US Coast Guard National Response Center is 800-424-8802.

Water Release:
This material is not soluble in water. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste. Notify all downstream users of possible contamination.

Land Release:
Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, clay, earth or commercial absorbent), then place in a chemical waste container. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water. Contain all contaminated water for disposal and/or treatment.

Additional Spill Information:
Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section XIII, Disposal Considerations.

VII. Handling and Storage

Handling:
Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash
with water. Avoid breathing vapor, mist or gas. Electrically ground all equipment when handling this product. Retained residue may make empty containers hazardous. USE CAUTION!

Storage
Keep container closed. Store in a cool area away from ignition sources and oxidizers.

Shelf Life Limitations:
See label or certificate of analysis for shelf life if applicable.

Incompatible Materials for Storage:
Refer to Section X, "Incompatible Materials."

VIII. Exposure Controls and Personal Protection

Ventilation:
Local exhaust ventilation or other engineering controls are normally preferred when handling or using this product. Otherwise, use general exhaust ventilation if that is sufficient for general worker safety and comfort. Explosion proof motors and fans are required. A NIOSH/MSHA approved air supplied respirator is advised in the absence of adequate environmental control.

Protective Equipment for Routine Use of Product
Respiratory Protection:
See previous paragraph. Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Respirator Type(s):
Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

Skin: Wear impervious gloves (butyl rubber, Viton, e.g.) to avoid skin contact. Follow good industrial hygiene practices.

Eyes: Use chemical safety glasses with side shields, safety goggles and/or a full face shield where splashing is possible.

Protective Clothing Type: Impervious

Exposure Limit Data: See Section II

Chemical Name: NIOSH Level Immediately Dangerous to Life or Health:
Not found

IX. Physical Data

Physical State: Liquid
Color: Colorless
Odor: Strong, characteristic aromatic odor

Molecular Weight: 106.17
pH (@ 25 Deg. C): Not applicable
Octanol/Water Coeff: No data

Solubility in Water: Nil
Bulk Density: Not applicable
Specific Gravity: 0.86 @ 20C/4C

Vapor Density (Air = 1): 3.7
Vapor Pressure: (@ 25 Deg. C): 8 mm Hg @20C (68F)
Evaporation Rate (Butyl acetate =1): 0.7

Volatile % by vol.: 100
Boiling Point: 137-140C (279-284F)
Freezing Point: -25C (-13F)

X. Stability and Reactivity

Stability and Reactivity Summary:
Stable under normal conditions.

Reactive Properties:
Sensitivity to mechanical shock: None
Hazardous Polymerization: Will not occur
Conditions to Avoid: High temperatures
Chemical Incompatibility: Strong acids, strong oxidizers.
Incompatible materials: Will attack some plastics. Compatible with common metals of construction.
Hazardous Decomposition Products: CO, CO2 and unidentified organic compounds.
Decomposition Temperature: No data
Product May Be Unstable At Temperatures Above: No data

**XI. Toxicological Information**

**Component Animal Toxicology**

- Oral LD50 value: 4300 mg/kg (rat)
- Dermal LD50 value: 1750 mg/kg (rabbit)
- Inhalation LC50 value: 5000 ppm (4 hrs) (rat)

Product Animal Toxicity: May cause teratogenic effects.

Skin Irritation: This material is expected to be slightly to moderately irritating, largely due to defatting the skin.

Eye Irritation: This material is expected to be slightly to moderately irritating.

Reproductive and Developmental Toxicity: No reproductive or developmental risk to humans is expected from exposure to this product.

Component Data: All data refer to xylene mixed isomers.

Mutagenicity: Not known or reported to be mutagenic.

Carcinogenicity: This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

**XII. Ecological Information**

Ecological Toxicity Values:

- Environmental fate: No information found
- Environmental Toxicity: No information found

**XIII. Disposal Considerations**

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS.

Waste Disposal Summary: Product as supplied qualifies as "Unlisted Hazardous Waste D001" with the characteristic of flammability, RQ 100#.

Potential US EPA Waste Codes:
- U002; D001

Disposal Methods:
- Disposed of in accordance with local, state and federal regulations for hazardous waste.

Components subject to land ban restrictions:
- No components subject to land ban restrictions.

**XIV. Transportation Information**

| Proper Shipping Name, Hazard Class, UN/NA Number Packing Group, Emergency Response Guide Number |  |
| Xylenes, 3, UN1307, PG III | ERG 130 |

Labels required per 49 CFR 172.101: Flammable
**XV. Regulatory Information**

**UNITED STATES:**

**Toxic Substances Control Act (TSCA):**
- The components of this product are listed on the TSCA Inventory of Existing Chemical Substances.

**Pesticide acceptance indication:** US EPA Registration Number:
- Not applicable

**Superfund Amendments and Reauthorization Act (SARA) Title III:**
- See Section III of this MSDS.

**Hazard Categories Sections 311/312 (40 CFR 370.2):**
- **Health:**
  - Acute: Yes
  - Chronic: Yes
- **Physical:** None

**Emergency Planning & Community Right to Know (40 CFR 355, App. A):**
- **Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:**
  - Not applicable
- **Reportable Quantity (40 CFR 302.4):**
  - 1000#
- **Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components**
  - None

**State Right-to-Know Regulations Status of Ingredients**
- Pennsylvania: No information
- New Jersey: No information
- Massachusetts: No information

**XVI. Additional Information**

**MSDS REVISION STATUS:**

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. WE BELIEVE THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF ITS PUBLICATION DATE, BUT MAKE NO WARRANTY THAT IT IS.

IF THIS MSDS IS MORE THAN THREE YEARS OLD YOU SHOULD CONTACT THE SUPPLIER TO MAKE CERTAIN THAT THE INFORMATION IS CURRENT.

MSDS data source: Mallinckrodt