Section 1 - Product and Company Information

Product Name: XYLENES, ISOMERS PLUS
ETHYLBENZENE, 98.5+%, A.C.S. REAGENT
Product Number: 247642
Brand: ALDRICH
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>XYLENE, MIXTURE OF ISOMERS</td>
<td>1330-20-7</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Percent</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHYLBENZENE</td>
<td>100-41-4</td>
<td>&lt; 25</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Formula: C8H10
Synonyms: Benzene, dimethyl- * Dimethylbenzene (OSHA) * Ksylen (Polish) * Methyl toluene * NCI-C55232 * RCRA waste number U239 * Violet 3 * Xiloli (Italian) * Xylene (ACGIH:OSHA) * Xylenen (Dutch) * Xylol * Xylole (German)
RTECS Number: ZE2100000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Flammable. Harmful.
Harmful by inhalation and in contact with skin. Irritating to skin. Risk of serious damage to eyes.
Target organ(s): Liver. Kidneys.

HMIS RATING
HEALTH: 2*
FLAMMABILITY: 3
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 3
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures
ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
Flammable Hazards: Yes

EXPLOSION HAZARDS
Container explosion may occur under fire conditions. May form explosive mixtures with air

FLASH POINT
77 °F  25 °C  Method: closed cup

EXPLOSION LIMITS
Lower: 1.1 %  Upper: 7 %

AUTOIGNITION TEMP
464 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.
Unsuitable: Water may be effective for cooling, but may not effect extinguishment.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back.
Emits toxic fumes under fire conditions.
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Avoid contact with eyes, skin, and clothing. Do not breathe vapor. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep container closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS
Country Source Type Value
USA ACGIH STEL 150 PPM
USA ACGIH TWA 100 PPM
USA OSHA PEL 8H TWA 100 PPM (435 MG/M3)
New Zealand OEL
Remarks: check ACGIH TLV
USA NIOSH TWA 100 PPM
STEL 150 PPM

EXPOSURE LIMITS
Country Source Type Value
Poland NDS 100 MG/M3
Poland NDSCh 350 MG/M3
Poland NDSP -

Section 9 - Physical/Chemical Properties

Appearance Physical State: Liquid
Color: Colorless

Property Value At Temperature or Pressure
Molecular Weight 106.17 AMU
pH N/A
BP/BP Range 136 - 140 °C
MP/MP Range N/A
Freezing Point N/A
Vapor Pressure 18 mmHg 37.7 °C
Vapor Density 3.7 g/l
Saturated Vapor Conc. N/A
SG/Density 0.865 g/cm³
Bulk Density N/A
Odor Threshold N/A
Volatile% N/A
VOC Content N/A
Water Content N/A
Solvent Content N/A
Evaporation Rate N/A
Viscosity N/A
Surface Tension N/A
Partition Coefficient N/A
Decomposition Temp. N/A
Flash Point 77 °F 25 °C Method: closed cup
Explosion Limits Lower: 1.1 % Upper: 7 %
Flammability N/A
Autoignition Temp 464 °C
Refractive Index 1.497
Optical Rotation N/A
Miscellaneous Data N/A
Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: Harmful if absorbed through skin.
Eye Contact: Causes eye irritation.
Inhalation: Harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

SIGNS AND SYMPTOMS OF EXPOSURE
Exposure can cause: CNS depression. Dermatitis. Anorexia.
Prolonged or repeated exposure to skin causes defatting and dermatitis.

TOXICITY DATA
Oral
Human
50 mg/kg
LDLO

Inhalation
Man
10,000 ppm
LCLO

Oral
Rat
4300 mg/kg
LD50
Remarks: Liver: Other changes. Kidney, Ureter, Bladder: Other changes.

Inhalation
Rat
5,000 ppm
LC50

Intraperitoneal
Rat
2459 MG/KG
LD50

Subcutaneous
Rat
1700 MG/KG
LD50

Oral
Mouse
2119 mg/kg
LD50

Intraperitoneal
Mouse
1548 MG/KG
LD50

Skin
Rabbit
> 1700 mg/kg
LD50

Oral
Mammal
4300 mg/kg
LD50

Inhalation
Mammal
30,000 mg/m3
LC50

IRRITATION DATA

Eyes
Human
200 ppm
Skin
Rabbit
100 %
Remarks: Moderate irritation effect

Skin
Rabbit
500 mg
24H
Remarks: Moderate irritation effect

Eyes
Rabbit
87 mg
Remarks: Mild irritation effect

Eyes
Rabbit
5 mg
24H
Remarks: Severe irritation effect

CHRONIC EXPOSURE - CARCINOGEN
Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST
Rating: Group 3

ACGIH CARCINOGEN LIST
Rating: A4

CHRONIC EXPOSURE - TERATOGEN
Result: Laboratory experiments have shown teratogenic effects.

Species: Rat
Dose: 250 MG/M3/24H
Route of Application: Inhalation
Exposure Time: (7-15D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 50 MG/M3/6H
Route of Application: Inhalation
Exposure Time: (1-21D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Specific Developmental Abnormalities: Other developmental abnormalities. Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Species: Rat
Dose: 200 PPM/6H
Route of Application: Inhalation
Exposure Time: (4-20D PREG)
Species: Mouse  
Dose: 20600 UG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse  
Dose: 2000 PPM/6H  
Route of Application: Inhalation  
Exposure Time: (6-12D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse  
Dose: 1 GM/M3/12H  
Route of Application: Inhalation  
Exposure Time: (6-15D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rabbit  
Dose: 500 MG/M3/24H  
Route of Application: Inhalation  
Exposure Time: (7-20D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

**CHRONIC EXPOSURE - REPRODUCTIVE HAZARD**

Species: Rat  
Dose: 50 MG/M3/6H  
Route of Application: Inhalation  
Exposure Time: (1-21D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Species: Mouse  
Dose: 31 MG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Mouse  
Dose: 4000 PPM/6H  
Route of Application: Inhalation  
Exposure Time: (6-12D PREG)  
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Physical.

Species: Rabbit  
Dose: 1 GM/M3/24H  
Route of Application: Inhalation  
Exposure Time: (7-20D PREG)  
Result: Effects on Fertility: Abortion.
Section 12 - Ecological Information

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Xylenes
UN#: 1307
Class: 3
Packing Group: Packing Group III
Hazard Label: Flammable liquid
PIH: Not PIH

IATA
Proper Shipping Name: Xylenes
IATA UN Number: 1307
Hazard Class: 3
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 10 20/21 38
Risk Statements: Flammable. Harmful by inhalation and in contact with skin. Irritating to skin.
S: 25
Safety Statements: Avoid contact with eyes.

US CLASSIFICATION AND LABEL TEXT
Risk Statements: Harmful by inhalation and in contact with skin. Irritating to skin. Risk of serious damage to eyes.
Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 1 %
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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