

Section 1: IDENTIFICATION OF SUBSTANCE AND SUPPLIER**PRODUCT NAME:** Xylenes, High Purity Chemicals**SYNONYMS:** Dimethylbenzene; xylol, methyltoluene; Xylene mixture of isomers**PRODUCT CODES:** ES609, ES609-5G**MANUFACTURER:** Azer Scientific, Inc.**ADDRESS:** 701 Hemlock Rd, Morgantown, PA 19543**CHEMTREC PHONE:** 800-424-9300 (USA)
+1.703.527.3887 (International)**SUPPORT:** 610-524-5810**FAX:** 610-901-3046**PRODUCT USE:** This product is recommended for laboratory and manufacturing use only. It is NOT recommended for drug, food or household use.**PREPARED BY:** CB**Section 2: HAZARDS IDENTIFICATION****Emergency Overview:**

WARNING! HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES IRRITATION TO EYES, SKIN, AND RESPIRATORY TRACT. ASPIRATION HAZARD IF SWALLOWED. MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN OR IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION.

GHS Classification(s):

Acute Toxicity, Dermal (Category 4)
Acute Toxicity, Inhalation (Category 4)
Aspiration Hazard (Category 1)
Chronic aquatic toxicity (Category 3)
Eye irritation (Category 2A)
Flammable Liquids (Category 3)
Skin irritation (Category 2)
Specific Target Organ Toxicity – single exposure (Category 3)

Target Organs: Central nervous system, Eyes, Respiratory system, Skin**GHS label elements (including precautionary statements)****Signal Word:**

DANGER!

Hazard Phrases	
H226	Flammable liquid and vapor
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
H412	Harmful to aquatic life with long lasting effects

Precautionary Phrases	
P261	Avoid breathing dust/fumes/gas/mist/vapors
P501	Dispose of contents and container to an approved waste disposal plant.
P331	Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
P310+P310	IF SWALLOWED: Immediately call a POISON CENTER or a doctor/physician.
P210	Keep away from heat, sparks, open flames and hot surfaces. No smoking.
P280	Wear protective gloves and eye and face protection

Other hazards which do not result in classification:

Potential Health Effects:

Organ	Description
Eyes	Contact with eyes generally causes transient superficial injury. Based on animal studies with mixed xylene isomers, it is probably a mild irritant.
Ingestion	Aspiration hazard. May cause irritation of the digestive tract. May cause central nervous system depression characterized by excitement followed by nausea, headache, and unconsciousness. Advanced stages may cause collapse, loss of consciousness, coma, and death from respiratory failure. May cause effects similar to acute inhalation.
Inhalation	High concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness, and coma. Prolonged exposures may result in dizziness and general weakness. Irritation may lead to pneumonitis and pulmonary edema. May cause liver and kidney damage. Causes irritation of the mucous membranes. Odor is not an adequate warning of exposure to xylene. Reversible liver and kidney damage has been reported in cases of extreme overexposure. Industrial fatalities due to severe overexposure have been described.
Skin	May be harmful if absorbed through the skin. Causes skin irritation, defatting, cracking, and dryness. Blistering may occur, particularly if exposure is concentrated and the exposed area is covered. Liquid and vapor and be absorbed through the skin, but not as easily as inhalation or ingestion. Absorption is reported to be slow and significant health effects are not expected by this route of exposure.
Chronic	Prolonged or repeated exposure to xylene may cause defatting and dermatitis., reversible eye damage, labored breathing, confusion, dizziness, apprehension, memory loss, headache, tremors, weakness, anorexia, nausea, ringing in the ears, irritability, thirst, mild changes in liver function, kidney impairment, anemia, and hyperplasia (but not destruction) of bone marrow.

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Identity:	Xylene
Common name / Synonym:	Dimethylbenzene, xylol, methyltoluene
CAS #:	1330-20-7; 100-41-4
EINECS #:	215-535-7; 202-849-4
ICSC #:	0268 (Ethyl Benzene)
RTECS #:	DA0700000 (Ethyl Benzene)
UN #:	1307
EC #:	601-023-00-4 (Ethyl Benzene)

% Weight	Material	CAS
15-25	Ethyl Benzene	100-41-4
75-85	Xylenes	1330-20-7

Section 4: FIRST AID MEASURES

General Advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing/shoes. Get medical aid if irritation persists. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Inhalation

If inhaled, remove to fresh air. If breathing is difficult, give supplemental oxygen. If not breathing, begin artificial respiration. Get medical attention.

Eyes

Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Ingestion

Aspiration hazard if swallowed. Get medical attention immediately. DO NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

Note to Physician

Treat symptomatically and supportively.

Section 5: FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Water streams may be ineffective and spread the fire. Use water spray, dry chemical, carbon dioxide or appropriate foam.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

No data available.

Special protective equipment and precautions for fire fighters:

Wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Liquid is lighter than water and may travel to a source of ignition and spread fire. May accumulate static electricity.

Flammable Properties

Classification	OSHA/NFPA Class IC Flammable Liquid
Flash Point	25-32° C (77-90°F) – closed cup
Autoignition temperature	527° C (982°F)

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Wear respiratory protection. Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and clean up:

Use water spray to dilute into a non-flammable mixture. Avoid runoff into storm sewers and ditches which lead to waterways. Provide ventilation to the affected area and remove all ignition sources. Vapor suppressing foam may be used. Water spray may reduce vapors but may not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand or earth. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Conditions for safe storage, including any incompatibilities:

Keep away from heat, sparks, and flame in a flammables area. Keep container closed when no in use. Keep from contact with oxidizing materials and strong acids. Store in a cool, dry, well-ventilated space and avoid contact with incompatible materials.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
Ethyl Benzene	US (NIOSH)	TWA	100 ppm /435 mg/m ³	NIOSH Recommended exposure limit
Ethyl Benzene	US (ACGIH)	TWA	100 ppm	ACGIH Threshold Limit Value
Ethyl Benzene	US (OSHA)	TWA	100 ppm / 435 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
Xylene	US (OSHA)	TWA	100 ppm / 435 mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
Xylene	US (ACGIH)	TWA	100 ppm / 34 mg/m ³	ACGIH Threshold Limit Value

Appropriate engineering controls:

Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Individual protection measures, such as personal protective equipment:

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection:

Wear impervious, flame retardant, antistatic protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance (<i>physical state, color, etc.</i>)	Liquid. Colorless. Clear
Odor	Aromatic odor
Odor threshold	1 ppm
pH	Not available
Freezing point	-34° C (-29.2° F)
Initial boiling point and boiling range	137-140°C (279-284°F)
Flash point	22.8°C (73°F) – Closed cup
Evaporation rate	(Butyl acetate = 1): 0.7
Flammability (solid, gas)	Flammable
Upper / Lower flammability or explosive limits	Lower Limit – 1.1 vol %, Upper Limit – 7.0 vol %
Vapor pressure	8.29 mmHg at 25°C (77°F)
Vapor density	3.66
Relative density	0.865 g/cm ³
Solubility(ies)	Insoluble
Partition coefficient n-octanol/water(ies)	Not Available
Auto-ignition temperature	527°C (982°F)
Decomposition temperature	Not Available
Formula	C ₆ H ₄ (CH ₃) ₂
Molecular weight (Xylene Mixtures)	106.17 g/mol

Section 10: STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions
Possibility of hazardous reactions	Hazardous Polymerization: Will not occur
Conditions to avoid (e.g., static discharge, shock or vibration)	Ignition sources and excess heat.
Incompatible materials	Strong oxidizing agents, , strong acids, acetic acid, and nitric acid
Hazardous decomposition products	Carbon monoxide and carbon dioxide

Section 11: TOXICOLOGICAL INFORMATION

Xylenes: Ethyl benzene 1330-20-7: 100-41-4

Product Summary: Epidemiology: 175 workers were exposed to 21 ppm of xylene for 7 years. Subjective symptoms, such as anxiety, forgetfulness, inability to concentrate, and dizziness were reported. Xylenes accounted for 70% of the total exposure. Liver and kidney effects were reported. Teratogenicity: No increased evidence of birth defects was reported in a study of lab workers exposed to xylene during early pregnancy. Exposure to other solvents and chemicals also occurred. An increased incidence of spontaneous abortions was reported. Animal information suggests that xylene is not teratogenic or embryotoxic at levels that are not harmful to the mother. Reproductive Effects: an increase in menstrual disorders has been reported in women exposed to organic solvents such as benzene, toluene, and xylenes. It is not possible to attribute these effects to xylene in particular. Mutagenicity: Xylene does not appear to be a mutagen. Neurotoxicity: Xylene may damage hearing or enhance sensitivity to noise in chronic occupational exposures, probably from a neurotoxic mechanism.

Acute Toxicity:

Animal Toxicity (Ethylbenzene)

LC50 Inhalation	Rat	55,000 mg/m ³	2 hours
LD50 Oral	Rat	3500 mg/kg	
LD50 Dermal	Rabbit	17,800 uL/kg	
LC50 Oral	Mouse	35,000 mg/m ³	2 hours
Draize test	Rabbit eye	500 mg	Severe

Animal Toxicity (Xylenes)

LC50 Inhalation	Rat	5,000 mg/m ³	4 hours
LD50 Oral	Rat	4300 mg/kg	
LD50 Dermal	Rabbit	>1700 mg/kg	

LD50 Oral	Mouse	2,119 mg/kg	
Draize test	Rabbit eye	87mg	Mild
Draize test	Rabbit eye	5 mg/24H	Severe
Draize test	Rabbit skin	100%	moderate
Draize test	Rabbit skin	500 mg/24H	Moderate

Irritation:

Routes of Entry:

Inhalation, skin absorption, skin contact

Carcinogenicity

IARC: Group 3: Not classifiable as to its carcinogenicity to humans (Xylene): Group 2B: Possibly carcinogenic to humans (Ethylbenzene)

ACGIH: Carcinogenicity (Xylenes): ACGIH: A4, not classifiable as a human carcinogen IARC: Group 3 – not classifiable. Carcinogenicity (Ethylbenzene):ACGIH: A3, confirmed animal carcinogen with unknown relevance to humans California: carcinogen, initial date 6/11/04 NTP: Not listed IARC: Group 2B carcinogen

NTP: No data is available

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	Contact with eyes generally causes transient, superficial injury. Based on animal studies with mixed Xylene isomers, it is probably a mild irritant.
Ingestion	Aspiration hazard. May cause irritation of the digestive tract. May cause central nervous system depression characterized by excitement followed by nausea, headache, dizziness, and unconsciousness. Advanced stages may cause collapse, loss of consciousness, coma, and death from respiratory failure. May cause affects similar to acute inhalation.
Inhalation	High concentrations may cause central nervous systems effects characterized by nausea, headache, dizziness, unconsciousness, and coma. Prolonged exposures may result in dizziness and general weakness. Irritation may lead to pneumonitis and pulmonary edema. May cause liver and kidney damage. Causes irritation of the mucous membranes. Odor is not an adequate warning of exposure to xylene. Industrial fatalities due to severe overexposure have been described
Skin	May be harmful if absorbed through the skin. Causes skin irritation, defatting, cracking, and dryness. Blistering may occur, particularly if exposure is concentrated and the exposed area is covered. Liquid and vapor and be absorbed through the skin, but not as easily as inhalation or ingestion. Absorption is reported to be slow and significant health effects are not expected by this route of exposure.
Chronic	Prolonged or repeated exposure to xylene may cause defatting and dermatitis., reversible eye damage, labored breathing, confusion, dizziness, apprehension, memory loss, headache, tremors, weakness, anorexia, nausea, ringing in the ears, irritability, thirst, mild changes in liver function, kidney impairment, anemia, and hyperplasia (but not destruction) of bone marrow.

Section 12: ECOLOGICAL INFORMATION

Xylenes: Ethyl benzene 1330-20-7: 100-41-4

Ecotoxicity (aquatic and terrestrial, where available):

Fish: rainbow trout: LC50 = 13.5 mg/L; 96 Hr; unspecified
 Fish: rainbow trout: LC50 = 8.5 mg/L; 96 Hr; static conditions
 Fish: goldfish: LD50 = 13 mg/L; 24 Hr; unspecified
 Fish: fathead minnow: LC50 = 46 mg/L; 1 Hr; Static bioassay
 Fish: fathead minnow: LC50 = 16.1mg/L; 96 Hr; flow-through conditions
 Fish: bluegill: EC50 = 16.1mg/L; 48 Hr; flow-through conditions
 Water flea: EC50 = 3.82 mg/L; 24 Hr; flow-through conditions
 Photobacterium phosphoreum: EC50 = 0.0084 mg/L; 24Hr; microtox test

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Other adverse effects:

Environmental Fate: (Atmosphere): According to a model of gas/particulate partitioning of semi volatile organic compounds in the atmosphere, xylene, which has an experimental vapor pressure of 7.99 mm Hg at 25° C, will exist solely as a vapor in the ambient atmosphere by reaction with photochemically-produced hydroxyl radicals. The atmospheric lifetime of xylene is about 14-26 hours. Ambient levels of xylene are detected in the atmosphere due to large emissions of this compound. Soil: In soil, it will volatilize and leach into groundwater. Little bioconcentration is expected.

Section 13: DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded acetonitrile is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state, and local requirements. This material is not a “P” listed waste under 40 CFR 261.33. It is not a “U” listed waste.

Section 14: TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	UN1307
UN proper shipping name	Xylenes
Transport hazard class(es)	3
Packing group (if applicable)	III

Reportable Quantity

454 kg

IMDG

UN-Number: 1307 Class: 3 Packing Group: III

EMS-No: F-E, S-D

Proper shipping name: XYLENES

Marine pollutant: No

IATA

UN-Number: UN1307 Class: 3 (6.1) Packing Group: III

Proper shipping name: Xylenes

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Flammable liquid, Harmful by skin absorption, Irritant

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC

Philippines	PICCS
United States of America	TSCA

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. Does not have a TPQ.

SARA 313 Components

Xylenes (CAS# 1330-20-7) and ethylbenzene (CAS# 100-41-4) are reportable under section 313 and 40 CFR373.

SARA 311/312 Hazards

- Acute Health Hazard
- Chronic Health Hazard
- Fire Hazard

CERCLA

CERCLA Hazardous Substances: CAS# 1330-20-7: 1000 lb final RQ; 454 kg final RQ; CAS# 100-41-4: 1000 lb final RQ; 454 kg final RQ

Massachusetts Right to Know Components

Ethylbenzene CAS-No. 100-41-4 Revision date 2007-07-01; Xylene CAS-No. 1330-20-7 Revision date 1989-08-11

Pennsylvania Right to Know Components

Ethylbenzene CAS-No. 100-41-4 Revision date 2007-07-01; Xylene CAS-No. 1330-20-7 Revision date 1989-08-11

New Jersey Right to Know Components

Ethylbenzene CAS-No. 100-41-4 Revision date 2007-07-01; Xylene CAS-No. 1330-20-7 Revision date 1989-08-11

California Prop 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Ethylbenzene CAS-No. 100-41-4 Revision date 2007-09-08

Section 16: OTHER INFORMATION: INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

NFPA:



Disclaimer

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