

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system. May be fatal if swallowed and enters airways. May damage fertility or the unborn child. Environmental hazard. This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.</p>	   

Section I. Chemical Product and Company Identification

Chemical Name	p-Xylene		
Catalog Number	X0014	Supplier	TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	1,4-Dimethylbenzene		
Chemical Formula	C ₈ H ₁₀		
CAS Number	106-42-3	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
p-Xylene	106-42-3	Min. 99.0 (GC)	TWA 100 ppm (435 mg/m ³) ST 150 ppm (655 mg/m ³)	Rat LD ₅₀ (oral) 3910 mg/kg Rat LC ₅₀ (inhalation) 4550 ppm/4H Rat LD ₅₀ (intraperitoneal) 3810 mg/kg

Section III. Hazards Identification

Acute Health Effects	<p>Aspiration Hazard; may be fatal if swallowed and enters airways. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY: Reproductive Effects. Rat TCLo Inhalation 3000 mg/m³/24 hours, female 9-10 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetotoxicity Maternal Effects - Other effects Endocrine - Estrogenic Rat TCLo Inhalation 3000 mg/m³/24 hours, female 7-14 days of pregnancy TOXIC Effects: Effects on Fertility - Post-implantation mortality Effects on Embryo or Fetus - Fetotoxicity Rabbit TCLo Inhalation 1 gm/m³/24 hours, female 7-20 days of pregnancy TOXIC Effects: Effects on Fertility - Post-implantation mortality Effects on Fertility - abortion Effects on Embryo or Fetus - Fetal death Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.</p>

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	528 °C (982.4 °F)
Flash Points	27 °C (80.6 °F).	Flammable Limits	LOWER: 1.1% UPPER: 7%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable material. Harmful material. Irritating material. Aspiration hazard. Environmentally hazardous material. Reproductive toxicity. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. HARMFUL. IRRITANT. ASPIRATION HAZARD. ENVIRONMENTAL HAZARD. REPRODUCTIVE TOXICITY. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/vapor/spray. Always store away from incompatible compounds such as oxidizing agents, acids.
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	TWA 100 ppm (435 mg/m ³) ST 150 ppm (655 mg/m ³)

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Insoluble in water. Soluble in alcohol, ether, organic solvents.
Specific Gravity	0.86 (water=1)		
Molecular Weight	106.17	Partition Coefficient	Log P _{ow} : 3.15
Boiling Point	139 °C (282.2 °F)	Vapor Pressure	0.9 kPa (@ 20 °C)
Melting Point	13 °C (55.4 °F) (freezing point)	Vapor Density	3.7 (Air = 1)
Refractive Index	1.4940 - 1.4980	Volatility	Not available.
Critical Temperature	Not available.	Odor	Aromatic.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong acids.

Section XI. Toxicological Information

RTECS Number	ZE2625000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 3910 mg/kg Rat LC ₅₀ (inhalation) 4550 ppm/4H Rat LD ₅₀ (intraperitoneal) 3810 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive Effects. Rat TCLo Inhalation 3000 mg/m ³ /24 hours, female 9-10 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetotoxicity Maternal Effects - Other effects Endocrine - Estrogenic Rat TCLo Inhalation 3000 mg/m ³ /24 hours, female 7-14 days of pregnancy TOXIC Effects: Effects on Fertility - Post-implantation mortality Effects on Embryo or Fetus - Fetotoxicity Rabbit TCLo Inhalation 1 gm/m ³ /24 hours, female 7-20 days of pregnancy TOXIC Effects: Effects on Fertility - Post-implantation mortality Effects on Fertility - abortion Effects on Embryo or Fetus - Fetal death Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	Aspiration Hazard; may be fatal if swallowed and enters airways. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	4-Xylene's production and use in petroleum products, as a chemical solvent and intermediate, and for the manufacture of terephthalic acid and herbicides may result in its release to the environment through various wastestreams. Naturally occurring sources of 4-xylene such as petroleum, forest fires and the volatiles of plants may also account for this compounds presence in the environment. 4-Xylene will enter the atmosphere primarily from fuel emissions and exhausts linked with its use in gasoline. Based upon an experimental vapor pressure of 8.84 mm Hg at 25 deg C, it is expected to exist solely in the vapor phase in the ambient atmosphere. Vapor-phase 4-xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an atmospheric half-life of about 27 hours. 4-Xylene is expected to have moderate mobility in soils based upon experimental Koc values obtained for a variety of soils at differing pH values and organic carbon content. Volatilization from dry soil surfaces is expected based upon the vapor pressure of this compound. Volatilization from moist soil surfaces is expected based on an experimental Henry's Law constant of 6.9X10 ⁻³ atm-cu m/mole. Biodegradation is an important environmental fate process for 4-xylene. In general, it has been found that 4-xylene is biodegraded in soil and groundwater samples under aerobic conditions and may be degraded under anaerobic denitrifying conditions. In water, 4-xylene is expected to adsorb somewhat to sediment or particulate matter based on its measured Koc values of 246 and 540 in silt and sandy loams respectively. This compound is expected to volatilize from water surfaces given its experimental Henry's Law constant. estimated half-lives for a model river and model lake are 3 and 99 hours, respectively. The potential for bioconcentration in aquatic organisms is expected to be low based on an experimental BCF value of 15, measured in fish. Exposure to 4-xylene may occur occupationally during its production or subsequent use, particularly as a solvent or in gasoline, via dermal and respiratory routes. The main route of exposure for the general population will be through inhalation of contaminated air as well as ingestion of contaminated drinking water and food. Dermal contact with household products containing 4-xylene is also expected to be significant.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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Section XIV. Transport Information

DOT Classification	DOT Class 3: Flammable liquid.
PIN Number	UN1307
Proper Shipping Name	Xylenes
Packing Group (PG)	III RQ= 100 lbs (45.4 kg)
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). On DSL
EINECS Number (EEC)	203-396-5
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. 3-60; 3-3

Section XVI. Other Information

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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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