Chemical Profiles

Xylene (mixed isomers)

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What are other names or identifying information for xylene?

CAS Registry No.: 1330-20-7
Other Names: Dimethylbenzene, Methyltoluene, Xylol (mixed isomers)
Main Uses: Manufacture of other chemicals, fuel component, solvent.
Appearance: Colourless liquid.
Odour: Aromatic

Canadian TDG: UN 1307

What is the WHMIS classification?

According to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), xylene can be classified as:

Flammable liquids - Category 3

Skin corrosion/irritation - Category 2

Reproductive toxicity - Category 2

Specific target organ toxicity - single exposure (narcotic effects) - Category 3 - Narcotic effect

Aspiration hazard - Category 1

The signal word is danger.

The hazard statements are:

- Flammable liquid and vapour
- Causes skin irritation

- Suspected of damaging fertility or the unborn child
- May cause drowsiness or dizziness
- May be fatal if swallowed and enters airways

Please note that this classification was retrieved from the CNESST site on February 22, 2023 and was established by CNESST personnel to the best of their knowledge based on data obtained from scientific literature and it incorporates the criteria contained in the *Hazardous Products Regulations* (SOR/2015-17). It does not replace the supplier's classification which can be found on its Safety Data Sheet.

What are the most important things to know about xylene in an emergency?

Emergency Overview: Colourless liquid. Aromatic odour. FLAMMABLE LIQUID AND VAPOUR. Can accumulate static charge. Distant ignition and flashback are possible. Can float on water and spread the fire. Heating may cause a fire or explosion. CONFINED SPACE HAZARD. Can accumulate in hazardous amounts in low-lying areas especially inside confined spaces. May cause drowsiness and dizziness. IRRITANT. Causes moderate or severe skin irritation. ASPIRATION hazard. May be fatal if swallowed and enters the airways. SUSPECT TERATOGEN/EMBRYOTOXIN. Suspected of damaging the unborn child.

What are the potential health effects of xylene?

Main Routes of Exposure: Inhalation. Skin contact. Eye contact.

- **Inhalation:** Can irritate the nose and throat. Can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness, and confusion. A severe exposure can cause unconsciousness.
- **Skin Contact:** SKIN IRRITANT. Causes moderate to severe irritation. Symptoms include pain, redness, and swelling. Can be absorbed through the skin, but harmful effects are not expected.
- **Eye Contact:** May cause mild irritation.
- **Ingestion:** If large amounts are ingested: Can cause effects as described for inhalation. Aspiration hazard. May be drawn into the lungs if swallowed or vomited, causing severe lung damage. Death can result.
- **Effects of Long-Term (Chronic) Exposure:** Can cause dry, red, cracked skin (dermatitis) following skin contact. Exposure to this chemical and loud noise may cause greater hearing loss than expected from noise exposure alone. May harm the nervous system. Conclusions cannot be drawn from the limited studies available.

- **Carcinogenicity:** Not a carcinogen.
    - International Agency for Research on Cancer (IARC): Group 3 – Not classifiable as to its carcinogenicity to humans.
    - American Conference for Governmental Industrial Hygienists (ACGIH): A4 - Not classifiable as a human carcinogen.
- **Teratogenicity / Embryotoxicity:** DEVELOPMENTAL HAZARD. May harm the unborn child based on animal information. Has been associated with: low birth weight or size, learning disabilities.
- **Reproductive Toxicity:** Not known to be a reproductive hazard.
- **Mutagenicity:** Not known to be a mutagen.

What are first aid measures for xylene?

Inhalation: Take precautions to prevent a fire (e.g. remove sources of ignition). Move victim to fresh air. If breathing has stopped, trained personnel should begin artificial respiration (AR). Get medical attention as soon as possible.

Skin Contact: Avoid direct contact. Wear chemical protective clothing if necessary. Quickly take off contaminated clothing, shoes and leather goods (e.g., watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately wash gently and thoroughly with gently flowing water and non-abrasive soap for 15-20 minutes. Get medical attention promptly. Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely.

Eye Contact: Avoid direct contact. Wear chemical protective gloves if necessary. Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with gently flowing water, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Ingestion: Have victim rinse mouth with water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Get medical attention immediately.

First Aid Comments: Some of the first aid procedures recommended here require advanced first aid training. All first aid procedures should be periodically reviewed by a medical professional familiar with the chemical and its conditions of use in the workplace.

What are fire hazards and extinguishing media for xylene?

Flammable Properties: FLAMMABLE LIQUID. Can ignite at room temperature. Releases vapour that can form explosive mixture with air. Can be ignited by static discharge.

Suitable Extinguishing Media: Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog. Foam manufacturers should be consulted for recommendations regarding types of foams and application rates.

Unsuitable Extinguishing Media: Water is not effective for extinguishing a fire. It may not cool product below its flash point.

Specific Hazards Arising from the Chemical: Liquid can float on water and may travel to distant locations and/or spread fire. Liquid can accumulate static charge by flow, splashing or agitation. Vapour may travel a considerable distance to a source of ignition and flash back to a leak or open container. Vapour may accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a toxicity hazard. Closed containers may rupture violently when heated releasing contents. In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; reactive chemicals; toxic, flammable aldehydes; and other chemicals.

What are the stability and reactivity hazards of xylene?

- **Chemical Stability:** Normally stable.
- **Conditions to Avoid:** Open flames, sparks, static discharge, heat and other ignition sources.
- **Incompatible Materials:** Nitric acid, strong oxidizing agents (e.g. perchloric acid). Not corrosive to metals.
- **Hazardous Decomposition Products:** None known.
- **Possibility of Hazardous Reactions:** None known.

What are unintentional release measures for xylene?

Personal Precautions: Keep unnecessary and unprotected personnel out of the spill area. Eliminate all ignition sources. Use grounded, explosion-proof equipment.

Methods for Containment and Clean-up: Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

What handling and storage practices should be used when working with xylene?

Handling: In the event of a spill or leak, exit the area immediately. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces, and static discharge. Post "No Smoking" signs. Electrically bond and ground equipment. Ground clips must contact bare metal. Avoid generating vapours or mists. Avoid repeated or prolonged skin contact with product or with contaminated equipment/surfaces.

Storage: Store in an area that is: cool, well-ventilated, out of direct sunlight and away from heat and ignition sources, clear of combustible and flammable materials (e.g., old rags, cardboard), separate from incompatible materials. Keep amount in storage to a minimum. Electrically bond and ground containers. Ground clips must contact bare metal. Avoid bulk storage indoors.

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for xylene?

ACGIH® TLV® - TWA: 20 ppm, OTO* A4 BEI

Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. OTO = Ototoxicant (chemical has the potential to cause hearing impairment alone or in combination with noise, even below 85dBA). A4 = Not classifiable as a human carcinogen. BEI® = Biological Exposure Index.

*OTO applies for p-xylene and mixtures containing p-xylene.

Adapted from: 2022 TLVs® and BEIs® - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH)

NOTE: In many (but not all) Canadian jurisdictions, the exposure limits are similar to the ACGIH® TLVs®. Since legislation varies by jurisdiction, contact your local jurisdiction for exact details. A list is available in the OSH Answers on Canadian Governmental Occupational Health & Safety Departments.

A list of which acts and regulations that cover exposure limits to chemical and biological agents is available on our website. Please note that while you can see the list of legislation for free, you will need a subscription to view the actual documentation.

What are the engineering controls for xylene?

Engineering Controls: Use a local exhaust ventilation and enclosure, if necessary, to control the amount in the air. For large scale use of this product: use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

What Personal Protective Equipment (PPE) is needed when working with xylene?

Eye/Face Protection: Wear chemical safety goggles. A face shield (with safety goggles) may also be necessary.

Skin Protection: Wear chemical protective clothing e.g. gloves, aprons, boots. Suitable materials include: polyvinyl alcohol, Viton®, Viton®/butyl rubber, AlphaTec® (4000, EVO, VPS), Kemblok®, Silver Shield® - PE/EVAL/PE, Chemprotex® 300, Frontline® 500, Tychem® (5000, 6000, 6000 FR, 9000, Responder® CSM, 10000, 10000 FR).

Not recommended: butyl rubber, natural rubber, neoprene rubber, polyvinylchloride – PVC.

Respiratory Protection:

Up to 900 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*; or Any supplied-air respirator*.
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*.
(APF = 50) Any self-contained breathing apparatus with a full facepiece.

*Reported to cause eye irritation or damage; may require eye protection.

APF = Assigned Protection Factor

Recommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the NIOSH Pocket Guide to Chemical Hazards for more information.

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