

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name O-Xylene

1.2 Other means of identification

Product number CCEM500680

Other names Benzene, 1,2-dimethyl-; Orthoxylene; 1,2-Dimethylbenzene

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 3

Acute toxicity - Category 4, Dermal

Skin irritation, Category 2

Acute toxicity - Category 4, Inhalation

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H226 Flammable liquid and vapour

H312 Harmful in contact with skin

H315 Causes skin irritation

H332 Harmful if inhaled

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P317 If skin irritation occurs: Get medical help. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Storage	P403+P235 Store in a well-ventilated place. Keep cool.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
O-Xylene	o-xylene	95-47-6	202-422-2	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Vapors cause headache and dizziness. Liquid irritates eyes and skin. If taken into lungs, causes severe coughing, distress, and rapidly developing pulmonary edema. If ingested, causes nausea, vomiting, cramps, headache, and coma. Can be fatal. Kidney and liver damage can occur. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate First Aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aromatic hydrocarbons and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2 Specific hazards arising from the chemical

Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Remove all ignition sources. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation.

Remove all ignition sources. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing 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: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 32°C use a closed system, ventilation and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding). Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants and strong acids. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): Flammable liquids.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 100 ppm as TWA; 150 ppm as STEL; A4 (not classifiable as a human carcinogen); BEI issued. MAK: 440 mg/m³, 100 ppm; peak limitation category: II(2); skin absorption (H); pregnancy risk group: D. EU-OEL: 221 mg/m³, 50 ppm as TWA; 442 mg/m³, 100 ppm as STEL; (skin)

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Colourless.
Odour	Sweet
Melting point/freezing point	-47.8 °C. Atm. press.: 1 013 hPa.
Boiling point or initial boiling point and boiling range	Ca. 139.1 °C. Atm. press.: 1 013 hPa.
Flammability	Class IC Flammable Liquid: FLP. at or above 73°F and below 100°F.
Lower and upper explosion limit/flammability limit	Percent vol: lower 0.9; upper 6.7
Flash point	27 °C. Atm. press.: 1 013 hPa.
Auto-ignition temperature	527 °C. Atm. press.: 1 013 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 0.581. Temperature: 25.0°C.
Solubility	Insoluble in water

Partition coefficient n-octanol/water	log Pow = 3.2. Temperature:20 °C. Remarks:Temperature and pH not stated so assumed standard.
Vapour pressure	0.207 PSI. Temperature:85 °F.
Density and/or relative density	0.86. Temperature:25 °C.
Relative vapour density	3.7 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts with strong acids and strong oxidants.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

A very dangerous fire hazard when exposed to heat or flame.As a result of flow, agitation, etc., electrostatic charges can be generated.O-XYLENE may react with oxidizing materials. (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible materials: Oxidizing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male) - 3 523 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - 6 247 ppm.
- Dermal: LD50 - rabbit (male) - 12 126 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence in humans for the carcinogenicity of xylenes. There is inadequate evidence in experimental animals for the carcinogenicity of xylenes. Overall classification: Xylenes are not classifiable as to their carcinogenicity to humans (Group 3)./Xylenes, o,m,p isomers/

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and skin. The substance may cause effects on the central nervous system. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking. The substance may have effects on the central nervous system. Exposure to the substance may increase noise-induced hearing loss. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 8.4 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: IC50 - *Daphnia magna* - 4.7 mg/L - 24 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 4.9 mg/L - 72 h.
- Toxicity to microorganisms: NOEC - activated sludge of a predominantly domestic sewage - 16 mg/L - 28 d.

12.2 Persistence and degradability

AEROBIC: 2-Xylene has been observed to biodegrade in standard biodegradability tests using various inocula including sewage, activated sludge and sea water(1-4). It was completely degraded in 8 days in groundwater in a gasoline-oil mixture; the acclimation period was 3-4 days(5). In laboratory experiments designed to simulate saturated-flow conditions typical of a river water/ground water infiltration system, degradation was rapid with 70% removal in the first 1.5 cm of the column after 10 days of operation under aerobic conditions(6). Another investigator found that 2-xylene was readily biodegraded (33 mg/day loss) in shallow ground water in an unconfined sand aquifer when oxygen was present(7). As the available oxygen was consumed, the rate of degradation decreased(7). 2-Xylene degraded in two steps with adaptation periods of 14 and 49 days, using an unpolluted groundwater seed(8,9). Xylene (mixed isomers), present at 100 mg/L, reached 100% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test which classified xylene as readily biodegradable(10). Using OECD Guideline 301F (Ready Biodegradability: Manometric Respirometry Test) with a mixture of sewage, soil and natural water inoculum, 2-xylene reached 90-94% of its O₂ consumption in 28 days which classified xylene as readily biodegradable in two separate studies(11). An OECD Guideline 301F test using activated sludge found >60% degradation in 28 days, but degradation failed the 10-day window for being readily biodegradable(11).

12.3 Bioaccumulative potential

A log BCF of 1.15 (BCF of 14) was measured in goldfish(1) and a log BCF of 1.3 was measured in eels (*Anguilla japonica*)(2) for 2-xylene. According to a classification scheme(3), these BCF values indicate that bioconcentration in aquatic organisms is low(SRC). A log BCF value was measured in clams (log BCF of 0.79)(4). A log bioconcentration value of 2.3 ((ug/kg)/(ug/L)) was determined in a green alga, *Selenastrum capricornutum*(5).

12.4 Mobility in soil

Koc values measured for 2-xylene in various soils (% organic matter) were 24 in Wendover silty clay (16.2%), 26 in Vaudreuil sand loam (10.0%), 68 in St. Thomas sand (3.1%), and 138 in Grimsby silt loam (1.0%)(1). Batch adsorption tests, using three solid sandy aquifer materials gave a Koc of 129(2). The Koc for 2-xylene in surface sediments collected from the central Tamar estuary in the UK was 25.4(3). The Koc values for 2-xylene in two river sediments (% organic matter 6.5-16.9 wt%) was 209 and 251, respectively(4). According to a classification scheme(5), these measured Koc values suggests that 2-xylene is expected to have very high to moderate mobility in soil. Using OECD Guideline 121 (estimating Koc via HPLC), the Koc of 2-xylene was estimated to be 537(6). Concentration enhancement has been observed for 2-xylene in a dune-infiltration project on the Rhine River(7); however, no 2-xylene reached groundwater under a rapid infiltration site(8). The log Koc for 2-xylene in coal sediment (% organic matter 52 wt%) was 2.40(4).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1307 (For reference only, please check.) IMDG: UN1307 (For reference only, please check.) IATA: UN1307 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: XYLENES (For reference only, please check.) IMDG: XYLENES (For reference only, please check.) IATA: XYLENES (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
o-xylene	o-xylene	95-47-6	202-422-2
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. The recommendations on this Card also apply to technical xylene. See ICSCs 0085 and 0086.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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