

Safety Data Sheet

1. Identification

Product Identifier: Xylene

Other Means of Identification: Xylol, xylenes, dimethyl benzene

Product use: Gasoline blending for octane enhancement; as an aromatic solvent for industrial use, such as servicing oil-wells.

Restrictions on use: Do not use for non-industrial purpose

Manufacturer: Keyera Alberta Envirofuels Facility (KAEF)





Address: 9511-17th Street, Edmonton, Alberta, Canada T6P 1Y3

Emergency Contact (24 hours): 1-780-449-7800 (KAEF main number)

Transportation Emergencies Only : (CANUTEC, Canada)Ph:1-888-CAN-UTEC(226-8832) Cell*666 (24 hr)
(CHEMTREC, U.S.) Ph: 1-800-424-9300 (24 hr)

2. Hazards Identification

GHS Hazards

Pictogram	Classification	Hazard Statements
	Flammable liquids – Category 2	Highly flammable liquid and vapor
	Acute toxicity – dermal – Category 4 Acute toxicity – inhalation – Category 4 Skin corrosion/irritation – Category 2 Serious eye damage/irritation – Cat 2A	Harmful in contact with skin Harmful if inhaled Causes skin irritation Causes serious eye irritation
	Specific target organ toxicity, single exposure – Category 1 Specific target organ toxicity, single exposure – Category 3 Specific target organ toxicity, repeated exposure – Category 1 Aspiration hazard – Category 1 Reproductive toxicity – Category 2	Causes damage to central nervous system, kidneys, liver, and/or respiratory system May cause drowsiness or dizziness Causes damage to nervous system, and/or respiratory system through prolonged or repeated exposure May be fatal if swallowed and enters airways Suspected of damaging fertility or the unborn child
	Hazardous to the aquatic environment – short term (acute) hazard – Category 2 Hazardous to the aquatic environment – long term (chronic) hazard – Category 2	Toxic to aquatic life Toxic to aquatic life with long lasting effects

Signal Word: Danger

Precautionary Statements:

Prevention

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources – No smoking.
- Keep container tightly closed.
- Ground and bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use non-sparking tools.
- Take action to prevent static discharges.
- Avoid release to the environment.
- Do not breathe vapors.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Response

- In case of fire: use dry chemical, CO₂, or fire-fighting foam to extinguish.
- If exposed or concerned: call a doctor/physician.

- If inhaled: Remove person to fresh air and keep comfortable for breathing.
- Call a doctor/physician if you feel unwell.

- If on skin (or hair): take off immediately all contaminated clothing and wash it before reuse. Rinse skin with plenty water/shower.
- If skin irritation occurs: get medical advice/attention.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing.
- If eye irritation persists: Get medical advice/attention.
- Collect spillage.
- If swallowed: immediately call a doctor/ physician. Do not induce vomiting.

Storage

- Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Store locked up.

Disposal

- Dispose of contents/container in accordance with applicable local, provincial/state, and federal regulations.

3. Composition/Information on Ingredients

Chemical Name: Xylene

Common Name/Synonyms: Xylol, xylenes, dimethyl benzene

Ingredient Name	wt %	CAS No.
Xylene	~65%	1330-20-7
p-xylene	56-60%	106-42-3
m-xylene	2-4%	108-38-3
o-xylene	3-5%	95-47-6
C2-C8 hydrocarbon	<0.5%	-
C9 - C12 aromatics & Iso-paraffins	23-25%	-
C13-C14 aromatics & Iso-paraffins	4-6%	-
Total sulphur	< 1.0%	
Hydrogen sulphide	< 0.5 wppm	7783-06-4
Tert-butyl mercaptan	9 wppm	75-66-1
Iso-butyl mercaptan	3 wppm	513-44-0
Butyl mercaptan	3 wppm	109-79-5
n-Heptyl mercaptan	11 wppm	1639-09-4

4. First Aid Measures

Immediate Medical Attention and Special Treatment:

Treat symptomatically and supportively. Refer also to Table below.

First Aid:	
Inhalation:	Remove person to fresh air and keep comfortable for breathing. Call a doctor/physician if you feel unwell.
Skin:	If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with plenty water/shower. If skin irritation occurs: get medical advice/attention.
Eyes:	Rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.
Ingestion:	If swallowed: immediately call a doctor/ physician. Do not induce vomiting. Note to Physician: Ingestion of this product or subsequent vomiting can result in aspiration, which may be fatal if enters airways.

Most Important Effects and Symptoms, Acute or Delayed:

Exp Route	Health Effects	Symptoms of Exposure
Skin:	Causes skin irritation.	Redness, rash.
Eye:	Causes serious eye irritation.	Redness and pain.
Inhalation:	Effects on the Central Nervous system (CNS) from mild to severe effects; may damage kidneys, liver, and/or respiratory system.	From rapid breathing, fatigue, headache, light-headedness to more severe symptoms of dizziness/drowsiness, and in extreme cases, respiratory arrest, convulsions or loss of consciousness.
Ingestion:	May be aspirated into lungs if swallowed.	Signs and symptoms of aspiration may include coughing, difficulty breathing, "gurgling" lung sounds when breathing, coughing up yellow/green phlegm (sputum), change in voice (hoarseness), skin turns bluish due to lack of oxygen.

5. Fire Fighting Measures

<p>Flammability: Yes. The liquid and vapor are highly flammable.</p>	<p>Hazardous Combustion Products: Carbon monoxide (CO), carbon dioxide (CO₂), and acrid smoke.</p>
<p>Explosion: Sensitive to impact: No</p>	<p>Sensitive to static discharge: Yes</p>
<p>Extinguishing Media: Small Fire: dry chemical, CO₂, or fire-fighting foam. Large Fire: fire-fighting foam.</p> <p>Fire-fighting foams which can be used are as follows: Fluoroprotein (FP)- Aspirated, Film-Forming Fluoroprotein (FFFP)- Non aspirated or aspirated, Alcohol-Resistant FFFP- Non aspirated or aspirated, AFFF - Non-aspirated or aspirated, AR-AFFF - Non-aspirated or aspirated.</p>	
<p>Unsuitable Extinguishing Media:</p> <ul style="list-style-type: none"> • Water: xylene is not soluble in water. Using water may spread fire. 	
<p>Special Protective Equipment for Firefighters:</p> <ul style="list-style-type: none"> • Wear full protective clothing and NIOSH-approved SCBA with full face-piece. 	
<p>Precautions for Firefighters:</p> <ul style="list-style-type: none"> • If tank, rail car or tank truck is involved in a fire, isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. • Move container from fire area if you can do it without risk. • Apply cooling water to sides of containers that are exposed to flames until well after fire is out. • Stay away from ends of tanks. • Stay away from tanks engulfed in fire. Closed containers exposed to heat may explode. (OSHA Class 3 Flammable Liquid) • Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. • Cool fire-exposed containers with flooding quantities of water applied from as far a distance as possible. • See Guide 128, Emergency Response Guidebook (Tranp. Can/US Dept. of Transp). 	
<p>Unusual Fire and Explosion Hazards:</p> <ul style="list-style-type: none"> • The highly flammable vapors are heavier than air and may accumulate in low areas and /or spread along ground to distant ignition sources and flash back. • Thermal decomposition produces acrid fumes. • Vapor-air mixtures are explosive above the flash point. 	

6. Accidental Release Measures

Protective Equipment:

Gloves: Recommended: neoprene and nitrile.
 Not recommended for heavy use: rubber, PVC, latex.

Respirator: NIOSH Approved and equipped with organic-vapor filter;

Eye: Safety glasses with side shields, safety goggles or face shields.

Clothing: Flame-retardant and chemical resistant e.g. Nomex, Proban.

Large spills: wear full protective clothing and NIOSH-approved SCBA with full face-piece.

Precautions:

- This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of ignition and heat.
- The highly flammable vapors are heavier than air and may accumulate in low areas and /or spread along ground to distant ignition sources and flash back.

Emergency Procedures:

- Shut off leak/release source, if it can be done safely.
- Remove all sources of ignition.
- Isolate hazard area.
- Evacuate area of all unnecessary personnel.
- Keep unnecessary and unprotected personnel from entering.
- Emergency personnel must wear appropriate personal protective equipment.

Small spill: will evaporate.

Large spill: consider downwind evacuation of at least 300 meters (1000 ft.)

If tank, rail car or tank truck is involved in a fire, ISOLATE and consider initial evacuation in all directions for 800 meters (½ mile).

- Ventilate area of leak or spill.

Containment and Clean-up:

- Use non-sparking tools and equipment.
- Use booms/pillows to prevent runoff into storm sewers and ditches that lead to waterways.
- Have foam or dry powder extinguisher on hand.
- Contain and recover liquid if it can be done safely: Collect spillage or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in metal container which can be grounded.
- Do not use combustible materials, such as sawdust, as absorbent.
- On large ground spills use firefighting foam to contain vapors. Recommended application rate is 0.1 USGPM/sq. ft. (4.1 L/Min/sq.ft.). This is the application rate for hydrocarbons as per NFPA 11
- If a leak or spill has not ignited, water spray may be used to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.
- Refer to Guide 128 of the Emergency Response Guidebook (Transport Canada/US Dept. of Transportation).

7. Handling and Storage

Handling Precautions :

- Use only in a well-ventilated area.
- Keep away from heat/sparks/open flames/hot surfaces – No smoking.
- Avoid contact with eyes, skin, and clothing.
- Avoid ingestion and inhalation
- Wear protective gloves/clothing and eye/face protection:

Gloves:	Recommended: neoprene and nitrile.
	Not recommended for heavy use: rubber, PVC, latex.
Respirator:	NIOSH Approved and equipped with organic-vapor filter;
Eye:	Safety glasses with side shields, safety goggles or face shields.
Clothing:	Flame-retardant e.g. Nomex, Proban.
- Use only non-sparking tools and explosion-proof ventilation equipment.
- Take precautionary measures against static discharge.
- Ground/bond containers and equipment when transferring material.
- Keep container tightly closed.

Storage Precautions:

Locations

- Store in a cool, dry, well-ventilated location, away from any area of fire-hazard.
- Outside or detached storage is preferred.
- Storage and use areas should be No Smoking areas.
- Ventilation system must be explosion-proof.
- Store locked-up.

Containers

- Containers should be grounded.
- Drums must be equipped with self-closing valves, pressure vacuum bungs, and flame arresters.
- Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.
- Do not attempt to clean empty containers since residue is difficult to remove.
- Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

Other precautions

- Separate from incompatibles like oxidizers e.g. bromates, chlorates, chromates, hypochlorites, perchlorates, peroxides, nitrates, nitrites.

8. Exposure Controls / Personal Protection

EXPOSURE LIMITS

	Authority	15 MINS STEL	8-HOURS OEL
Xylene (o-,m-,p- isomers) (CAS 1330-20-7)	Alberta	150 ppm (650 mg/ m ³)	100 ppm (434 mg/m ³)
	Ontario, BC	150 ppm	100 ppm



ENGINEERING CONTROLS

- Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation, process or personal enclosure, control or process conditions, and process modification.
- Ventilate area where product is used, stored and/or handled to maintain airborne concentrations below the LEL and OEL, especially in confined spaces.
- Ventilation equipment must be explosion proof.
- Exhaust directly to the outside, taking necessary precautions for environmental protection.
- Supply sufficient replacement air to make up for air removed by exhaust systems.
- Ground and bond container and receiving equipment.



PERSONAL PROTECTIVE EQUIPMENT

- Gloves: Recommended: neoprene and nitrile.
Not recommended for heavy use: rubber, PVC, latex.
- Clothing: Flame-retardant e.g. Nomex, Proban.
- Respirator: NIOSH-approved air-purifying respirator equipped with organic-vapor cartridges.
NIOSH-approved SCBA with full face-piece if concentration is unknown.
- Eye: Safety glasses with side shields, safety goggles or face shields.

9. Physical and Chemical Properties

Chemical Formula: C ₈ H ₁₀ or C ₆ H ₄ (CH ₃) ₂	Molecular Weight: 106.16 g/mole	Chemical Family: Hydrocarbon, aromatic
Appearance: Brownish liquid	Odor: Aromatic odour along with a sulfide stench	Odor Threshold: Not established
pH: Not applicable	Freezing Pt./Melting Pt.: 13.0°C (55°F)	Boiling Point: 112°C (233.6°F)
Flashpoint and Method: 22°C (71.6°F) Closed Cup	Flammability: Yes	Evaporation Rate: Approx. 0.51 (Butyl Acet. = 1)
Upper-Lower Explosive Limit: 7.0% - 1.1%	Vapor Pressure: ~9.8 kPa @ 25°C	Vapor Density: ~3.7 (air = 1)
Specific Gravity: ~0.91 @ 15°C	Percent Soluble (@25°C): 146-175 mg/L water	Soluble in organic solvents e.g. acetone, chloroform, alcohol and ether
Partition Coefficient n-octanol/water: 2.8-3.2	Auto-Ignition Temperature: ~465-525°C (867-977°F)	Decomposition Temp.: Not available
Dynamic Viscosity: Not available	Kinematic Viscosity: Not available	Isobaric Heat Capacity: Not available
Henry's Law Constant: 0.42-0.68 kPa @ 25°C	Percent Volatile: 100 by volume	Boiling Range: 112-247°C (~234-478°F)

10. Stability and Reactivity

Reactivity: Avoid incompatible materials: may react violently with oxidizers.
Chemical Stability: Stable under normal temperatures and pressures.
Possibility of Hazardous Reactions: Polymerization has not been reported to occur under normal temperature and pressure conditions.
Conditions to Avoid: Extreme temperatures and incompatible materials.
Incompatible Materials: <ul style="list-style-type: none"> • <u>Acids</u>: may react violently with nitric acid, an oxidizer. • <u>Oxidizers</u>: may react violently with oxidizers such as bromates, chlorates, chromates, hypochlorites, perchlorates, peroxides, nitrates, nitrites.
Hazardous Decomposition Products: Carbon monoxide (CO), carbon dioxide (CO ₂). Thermal decomposition produces acrid fumes.

11. Toxicological Information

Exposure Route	Acute Health Effects	Symptoms of Exposure
Inhalation:	Effects on the Central Nervous system (CNS) may range from mild to severe effects such as respiratory depression; may damage kidneys, liver, and/or respiratory system	From rapid breathing, fatigue, headache, light-headedness to more severe symptoms of dizziness/drowsiness, and in extreme cases, respiratory arrest, convulsions or loss of consciousness.
Skin:	Causes skin irritation.	Redness, rash.
Eye:	Causes serious eye irritation.	Redness and pain.
Ingestion:	May be aspirated into lungs if swallowed, may be fatal if enters airways.	Signs and symptoms of aspiration may include coughing, difficulty breathing, “gurgling” lung sounds when breathing, coughing up phlegm (sputum) that is yellow or green in color or bad smelling, change in voice (hoarseness), skin turning bluish due to lack of oxygen.
	May have effects on the CNS.	See “inhalation” above for symptoms of CNS effects.

Chronic Exposure:
Inhalation:

Causes damage to nervous system, and/or respiratory system through prolonged or repeated exposure

Skin:

Repeated and prolonged contact may cause dermatitis due to the defatting action.

Medical Conditions Aggravated by Exposure:

Dermatitis impaired pulmonary function, diseases of the eyes, liver, kidneys or lungs.

Sensitization: No	Reproductive Toxicology: Yes	Teratogenicity: No	Mutagenicity: No
Carcinogenicity: IARC – Group 3 (not classifiable)	Irritancy: Irritant to eyes & skin.	Target Organs: Central Nervous System (CNS), kidney, liver, respiratory system	

Lethality Tests:

Chemical	CAS No.	LD50	LC50
Xylene (o-,m-,p-Isomers)	1330-20-7	Rabbit, dermal: >4350 mg/kg Rat, oral: 3500 mg/kg	Rat, inhalation, vapor: 29.08 mg/L 4 hr

Product Toxicity Data:

Acute Toxicity Estimate (ATE)	Dermal = 1439 mg/kg	Inhalation, vapor = 17.95 mg/L
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12. Ecological Information

Persistence & Degradability: Slow biodegradation in soil and water.	Bioaccumulative Potential: May bioaccumulate to some extent.
Mobility: No data available.	Other Adverse Effects: Toxic to aquatic life with long lasting effects.

Terrestrial Fate:

- Volatilization from moist soil surfaces is expected to be an important fate process; the heavier components may persist in the soil.

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Aquatic Fate:

- Hydrolysis of xylene in water is not expected to be important because the compound does not contain any hydrolysable group.
- Volatilization from water surfaces is expected to be one important fate process; the heavier components may persist in the water and form sediments.

Atmospheric Fate:

- If released to air, a vapor pressure of ~10 kPa @25°C indicates that xylene will exist solely in the vapor-phase in the ambient atmosphere.

Eco Toxicity Tests (xylene: CAS 1330-20-7)

Species	Test Method	LC50/ EC50/
Oncorhynchus mykiss (rainbow trout)	Flow through 96 hours	13.5-17.3 mg/L
	Static 96 hrs.	2.661-4.093 mg/L
Pimephales promelas (fathead minnow)	Flow through 96 hours	13.4 mg/L
	Static 96 hours	23.53-29.97 mg/L
Lepomis macrochirus (bluegill)	Flow through 96 hours	13.1-16.5 mg/L
	Static 96 hrs.	7.711-9.591 mg/L
Precilla reticulata (guppy)	Static 96 hours	30.26-40.75 mg/L
Cyprinus carpio (carp)	Flow through 96 hours	>780 mg/L
	Semi-Static test; 96 hours	780 mg/L

13. Disposal Considerations

Waste Disposal:

- Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial, and federal regulations.
- Waste isooctane can be incinerated, fuels blending, or recycled
- Do not dispose of waste with normal garbage, or to sewer systems.

Canada – Hazardous Waste and Hazardous Recyclable Material:

- Environmentally Hazardous Substances: 100.0 mg/kg.
- From Non-Specific Sources: Code F003 (spent non-halogenated solvent).
- Hazardous Waste and Hazardous Recyclable Material Chemicals: Code U239

14. Transport Information

TDG (CANADA) CLASSIFICATION

PROPER SHIPPING NAME: Xylenes

CLASS: 3 (Flammable Liquid)

UN NUMBER: UN1307

PACKING GROUP: II

LABEL/PLACARD:



TDG SPECIAL PROVISION: None

15. Regulatory Information

CANADA

Xylene (CAS 1330-20-7)

Regulatory List	
Domestic Substance List (DSL)	yes
National Pollutant Release Inventory (NPRI)	yes
Environmental Emergencies (E2)	yes
Canada Drinking Water Quality Maximum Allowable Concentration (MAC)	0.09 mg/L (total)
Alberta Water Quality Guidelines for Freshwater Aquatic Life – Chronic	30 ug/L (total all isomers)
Ontario Drinking Water Standards – Aesthetic Objectives (AO)	0.3 mg/L
Ontario Drinking Water Standards – Chemical Parameters - Maximum Allowable Concentration (MAC)	0.09 mg/L

16. Other Information

NFPA Hazard Rating:
Health 2, Flammability 3, Instability 0



Prepared for: Keyera Health and Safety
Issue Date/ Revision No: August 17, 2021/Revision #1

Revisions:	Dates:	Main Changes
• Original	August 1, 2018	-
• 1 st Revision :	August 17, 2021	Phone number updated

Glossary

- ACGIH** – American Conference of Governmental Industrial Hygiene
- DOT** – US Department of Transportation
- GHS** – Globally Harmonized System
- IARC** – International Agency for Research on Cancer
- IDLH** – Immediately Dangerous to Life and Health
- NIOSH** – National Institute for Occupational Safety & Health
- NPRI** – National Pollutant Release Inventory (Canada)
- NTP** – National Toxicology Program
- OSHA** – Occupational Safety & Health Administration of the US Depart of Labour
- PEL** – Permissible Exposure Limit
- SARA** – Superfund Amendments and Reauthorization Act of 1986
- STEL** – Short Term Exposure Limit
- TRI** – US Toxic Release Inventory
- TSCA** – Toxic Substance Control Act
- TWA** – Time Weighted Average

Disclaimer of Expressed and Implied Warranties

The information presented in the Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. However, neither Keyera nor its affiliates assumes any liability whatsoever for the accuracy or completeness of the information contained herein. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

~ End of Safety Data Sheet ~