



	Hazardous to the aquatic environment – short term (acute) hazard – Category 2	Toxic to aquatic life
-	Hazardous to the aquatic environment – long term (chronic) hazard – Category 2	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.
- 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.
- Contaminated work clothing should not be allowed out of the workplace.
- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Avoid release to the environment.

**Response**

- In case of fire: use dry chemical, CO<sub>2</sub>, 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. Rinse skin with plenty water/shower.
- Take off contaminated clothing and wash it before reuse.
- If skin irritation or rash 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.
- If swallowed: immediately call a doctor/ physician. Rinse mouth. Do not induce vomiting.
- Collect spillage.

**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.



#### 4. First Aid Measures

**Immediate Medical Attention and Special Treatment:**

Treat symptomatically and supportively. Refer also to Table below.

<b>First Aid:</b>	
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 or rash 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.  <b>Note to Physician:</b> Ingestion of this product or subsequent vomiting can result in aspiration, which may be fatal if enters airways.

<b>Most Important Effects and Symptoms, Acute or Delayed:</b>		
<b>Exp Route</b>	<b>Health Effects</b>	<b>Symptoms of Exposure</b>
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, which may be fatal if enters airways.	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><b>Flammability:</b> Yes. The liquid and vapor are highly flammable.</p>	<p><b>Hazardous Combustion Products:</b> Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and acrid smoke.</p>
<p><b>Explosion:</b> Sensitive to impact: No</p>	<p><b>Sensitive to static discharge:</b> Yes</p>
<p><b>Extinguishing Media:</b> Small Fire: dry chemical, CO<sub>2</sub>, 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><b>Unsuitable Extinguishing Media:</b></p> <ul style="list-style-type: none"> <li>• Water: polyethylbenzene is not soluble in water. Using water may spread fire.</li> </ul>	
<p><b>Special Protective Equipment for Firefighters:</b></p> <ul style="list-style-type: none"> <li>• Wear full protective clothing and NIOSH-approved SCBA with full face-piece.</li> </ul>	
<p><b>Precautions for Firefighters:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Move container from fire area if you can do it without risk.</li> <li>• Apply cooling water to sides of containers that are exposed to flames until well after fire is out.</li> <li>• Stay away from ends of tanks.</li> <li>• Stay away from tanks engulfed in fire. Closed containers exposed to heat may explode. (OSHA Class 1 Flammable Liquid)</li> <li>• Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.</li> <li>• Cool fire-exposed containers with flooding quantities of water applied from as far a distance as possible.</li> <li>• See Guide 128, Emergency Response Guidebook (Tranp. Can/US Dept. of Transp).</li> </ul>	
<p><b>Unusual Fire and Explosion Hazards:</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Thermal decomposition produces acrid fumes.</li> <li>• Vapor-air mixtures are explosive above the flash point.</li> </ul>	

## 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 fire fighting 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.
- Do not breathe vapors.
- 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 and chemical resistant 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.

#### 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 (Alberta)

	CAS	15 MINS STEL	8-HOURS OEL
Propane	74-98-6	-	1000 ppm
Butane	106-97-8	-	1000 ppm
Isopentane	78-78-4	-	600 ppm (1770 mg/ m <sup>3</sup> )
Pentane	109-66-0	-	600 ppm (1770 mg/ m <sup>3</sup> )
Benzene	71-43-2	2.5 ppm (8 mg/ m <sup>3</sup> )	0.5 ppm (1.6 mg/ m <sup>3</sup> )
Toluene	108-88-3	-	50 ppm (188 mg/ m <sup>3</sup> )
Xylene (o-,m-,p- isomers)	1330-20-7	150 ppm (650 mg/ m <sup>3</sup> )	100 ppm (434 mg/m <sup>3</sup> )
Ethylbenzene	100-41-4	125 ppm (543 mg/ m <sup>3</sup> )	100 ppm (434 mg/m <sup>3</sup> )
Trimethylbenzene	25551-13-7	-	25 ppm (123 mg/m <sup>3</sup> )
Naphthalene	91-20-3	15 ppm (79 mg/ m <sup>3</sup> )	10 ppm (52 mg/m <sup>3</sup> )
Hydrogen sulphide	7783-06-4	15 ppm (21 mg/ m <sup>3</sup> )	10 ppm (14 mg/ m <sup>3</sup> )



### 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

<b>Chemical Formula:</b> (C <sub>8</sub> H <sub>10</sub> ) <sub>x</sub> -	<b>Molecular Weight:</b> 106.17 g/mole	<b>Chemical Family:</b> Hydrocarbon, aromatic
<b>Appearance:</b> Dark brown liquid	<b>Odor:</b> Aromatic odor	<b>Odor Threshold:</b> Not established
<b>pH:</b> Not applicable	<b>Freezing Pt./Melting Pt.:</b> ~ - 42°C (- 44°F)	<b>Boiling Point:</b> 20°C (68°F)
<b>Flashpoint and Method:</b> < -20°C (<-4°F) Closed Cup	<b>Flammability:</b> Yes	<b>Evaporation Rate:</b> Not available
<b>Upper-Lower Explosive Limit:</b> Not available	<b>Vapor Pressure:</b> ~86 kPa @ 25°C	<b>Vapor Density:</b> 5.5-7.2 (air = 1)
<b>Specific Gravity:</b> ~0.93 @ 15°C	<b>Percent Soluble (@25°C):</b> Negligible (<20 ppm in water)	Soluble in organic solvents e.g. acetone, chloroform, alcohol and ether
<b>Partition Coefficient n-octanol/water:</b> Not available	<b>Auto-Ignition Temperature:</b> 400°C (752°F) estimated	<b>Decomposition Temp.:</b> Not available
<b>Dynamic Viscosity:</b> Not available	<b>Kinematic Viscosity:</b> ~ 5 cSt (20°C) ~15.5 cSt (- 20°C)	<b>Gross Heat of Combustion:</b> 18230 BTU/lb
<b>Henry's Law Constant:</b> Not available	<b>Percent Volatile:</b> <10% by volume	<b>Boiling Range:</b> 20-526.5°C (~68-980°F)

### 10. Stability and Reactivity

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

### 11. Toxicological Information

Exposure Route	Acute Health Effects	Symptoms of Exposure
<b>Inhalation:</b>	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.
<b>Skin:</b>	Causes skin irritation.	Redness, rash.
<b>Eye:</b>	Causes serious eye irritation.	Redness and pain.
<b>Ingestion:</b>	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, respiratory system and/or ears (hearing loss) through prolonged or repeated exposure

**Skin:**

Not known to be a skin-sensitizer. 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.

<b>Sensitization:</b> Yes	<b>Reproductive Toxicology:</b> Yes	<b>Teratogenicity:</b> No	<b>Mutagenicity:</b> No
<b>Carcinogenicity:</b> Yes	<b>Irritancy:</b> Irritant to eyes & skin.	<b>Target Organs:</b> Central Nervous System (CNS)	

**Lethality Tests:**

<b>Chemical</b>	<b>CAS No.</b>	<b>LD50</b>	<b>LC50</b>
Propane	74-98-6	-	Rat, inhalation >800000 mg/L 15 min
Butane	106-97-8	-	Rat, inhalation 658 mg/L 4 hr
Pentane	109-66-0	Rabbit, dermal: 3000 mg/kg Rat, oral: 2600 mg/kg	Rat, inhalation 364 mg/L 4 hr
Benzene	71-43-2	Rabbit, dermal: 12000 mg/kg Rat, oral: >2000 mg/kg (no death occurred)	Rat, inhalation 12.5 mg/L 4 hr
Toluene	108-88-3	Rabbit, dermal: >8200 mg/kg Rat, oral: 810 mg/kg	Rat, inhalation 44.66 mg/L 4 hr
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
Ethylbenzene	100-41-4	Rabbit, dermal: 15400 mg/kg at, oral: 3500 mg/kg	Rat, inhalation, vapor: 17.4 mg/L 4 hr
Trimethylbenzene (all isomers)	25551-13-7	Rat, oral: 8970 mg/kg	-
Diethylbenzene (all isomers)	25340-17-4	Rabbit, dermal: >5000 mg/kg Rat, oral: 2050 mg/kg	-
Naphthalene	91-20-3	Rabbit, dermal: 1120 mg/kg Rat, oral: 1110 mg/kg	Rat, inhalation, >340 mg/m <sup>3</sup> 1 hr
Hydrogen sulphide	7783-06-4	-	Rat, inhalation, 700 mg/m <sup>3</sup> 4 hr

## 12. Ecological Information

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

### Terrestrial Fate:

- Volatilization from moist soil surfaces is not expected to be an important fate process; the heavier components may persist in the soil.

### Aquatic Fate:

- Hydrolysis of polyethylene mixture in water is not expected to be important because the compound does not contain any hydrolysable group.
- Volatilization from water surfaces is not 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 small percentage may evaporate leaving heavy residue on the ground,

### 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

### Eco Toxicity Tests

#### Naphthalene: (CAS 91-20-3)

Species	Test Method	LC50/ EC50/
Oncorhynchus mykiss (rainbow trout)	Flow through 96 hours	1.6 mg/L
	Static 96 hrs.	0.91-2.82 mg/L
Pimephales promelas (fathead minnow)	Flow through 96 hours	5.74-6.44 mg/L
Lepomis macrochirus (bluegill)	Static 96 hrs.	31.0265 mg/L
Daphnia magna (water fleas)	Flow through 48 hours	1.96 mg/L
	Static 48 hours	1.09-3.4 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.

**14. Transport Information**

**TDG (CANADA) CLASSIFICATION**

**PROPER SHIPPING NAME:** Flammable Liquid, N.O.S. (Polyethylbenzene)

**CLASS:** 3 (Flammable Liquid)

**UN NUMBER:** UN1993

**PACKING GROUP:** I

**LABEL/PLACARD:**



**TDG SPECIAL PROVISION:** None

**MARINE POLLUTANT:** yes

**15. Regulatory Information**

**CANADA**

	<b>CAS</b>	<b>DSL</b>	<b>NPRI</b>	<b>E2</b>
Propane	74-98-6	yes	yes	yes
Butane	106-98-7	yes	-	yes
Iso-butane	74-98-6	yes	-	yes
Pentane	109-66-0	yes	-	yes
Iso-pentane	78-78-4	yes	-	yes
Benzene	71-43-2	yes	yes	yes
Toluene	108-88-3	yes	yes	yes
Xylene (all isomers)	1330-20-7	yes	yes	yes
Ethylbenzene	100-41-4	yes	yes	yes
Trimethylbenzene	25551-13-7	Yes	yes	-
Diethylbenzene	25340-17-4	yes	-	-
Naphthalene	91-20-3	yes	yes	yes
Hydrogen sulphide	827-52-1	yes	yes	yes

**16. Other Information**

**NFPA Hazard Rating:**  
Health 2, Flammability 4, Instability 0



**Prepared for:** Keyera Health and Safety  
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<b>Revisions:</b>	<b>Dates:</b>	<b>Main Changes:</b>
• Original:	August 1, 2018	-
• 1st Revision	August 17, 2021	Contact numbers and address

**Glossary**

**ACGIH** – American Conference of Governmental Industrial Hygiene  
**DOT** – US Department of Transportation  
**DSL** – Domestic Substance List (Canada)  
**E2** – Environmental Emergencies (Canada)  
**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 Dept 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

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~ End of Safety Data Sheet ~