

1. Product and Company Identification

Product identifier	Crude Oil Tank Bottoms
Other means of identification	Petroleum gas oil, Rock oil
Synonyms	Not available.
Recommended use	Refinery waste stream
Recommended restrictions	None known.
Manufacturer information	Irving Oil Refining G.P. Box 1260 Saint John, NB E2L 4H6 CA Phone: (506) 202-2000 Refinery: (506) 202-3000 Emergency Phone: 1-800-424-9300 (CHEMTREC)
Supplier	See above.

2. Hazards Identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Serious eye damage/eye irritation	Category 2
	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1A
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 1
	Aspiration hazard	Category 1
Environmental hazards	Not classified.	
WHMIS 2015 defined hazards	Not classified	
Label elements		



Signal word	Danger
Hazard statement	Flammable liquid and vapor. Causes serious eye irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May cause respiratory irritation. May cause drowsiness or dizziness. Causes damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

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

Response	In case of fire: Use appropriate media to extinguish. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. IF exposed or concerned: Get medical advice/attention.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)	None known
WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)	None known
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Petroleum		8002-05-9	60- 100
Iron		7439-89-6	0.5 - 1.5
1-Methylnaphthalene		90-12-0	0.1 - 1
2-Methylnaphthalene		91-57-6	0.1 - 1
Hydrogen sulfide		7783-06-4	<1
Sulfur		7704-34-9	<1
Benzene		71-43-2	<0.1
Benzene, ethyl-		100-41-4	<0.1
Toluene		108-88-3	<0.1
Xylene		1330-20-7	< 0.1

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments	*Crude oil is a complex mixture of hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Crude oil contains hundreds of individual organic chemicals. This section identifies only some of the well-known chemical constituents.
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4. First Aid Measures

Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
Skin contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses if present, after the first 5 minutes, then, continue rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Symptoms may be delayed.

General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Take off all contaminated clothing immediately. Wash contaminated clothing before reuse. Keep away from sources of ignition. No smoking. Avoid contact with eyes and skin. Keep out of reach of children.
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5. Fire Fighting Measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Container may explode in heat of fire. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters should wear full protective clothing including self-contained breathing apparatus.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Flammable liquid and vapor.
Hazardous combustion products	May include and are not limited to: Oxides of nitrogen. Oxides of sulfur. Aromatic hydrocarbons. Hydrogen sulfide.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not breathe mist or vapor. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Stop leak if you can do so without risk. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewers, basements or confined areas.
Environmental precautions	Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Ground and bond containers when transferring material. Use non-sparking tools and explosion-proof equipment. Use only with adequate ventilation. Avoid breathing vapors or mists of this product. Avoid contact with eyes. Wear appropriate personal protective equipment. Pregnant or breastfeeding women must not handle this product. Avoid prolonged exposure. Observe good industrial hygiene practices. Wash thoroughly after handling. When using, do not eat, drink or smoke.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat, open flames or other sources of ignition. Do not store at temperatures above 120°F (49°C). Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure Controls/Personal Protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	8 mg/m3
		2.5 ppm
	TWA	1.6 mg/m3

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
		0.5 ppm
Benzene, ethyl- (CAS 100-41-4)	STEL	543 mg/m3
		125 ppm
	TWA	434 mg/m3
		100 ppm
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	21 mg/m3
		15 ppm
	TWA	14 mg/m3
		10 ppm
Sulfur (CAS 7704-34-9)	TWA	10 mg/m3
Toluene (CAS 108-88-3)	TWA	188 mg/m3
		50 ppm
Xylene (CAS 1330-20-7)	STEL	651 mg/m3
		150 ppm
	TWA	434 mg/m3
		100 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
1- Methyl-naphthalene (CAS 90-12-0)	TWA	0.5 ppm
2- Methyl-naphthalene (CAS 91-57-6)	TWA	0.5 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Benzene, ethyl- (CAS 100-41-4)	TWA	20 ppm
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	10 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Xylene (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
1- Methyl-naphthalene (CAS 90-12-0)	TWA	0.5 ppm
2- Methyl-naphthalene (CAS 91-57-6)	TWA	0.5 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Benzene, ethyl- (CAS 100-41-4)	TWA	20 ppm
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm
	TWA	1 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Xylene (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
1- Methyl-naphthalene (CAS 90-12-0)	TWA	0.5 ppm
2- Methyl-naphthalene (CAS 91-57-6)	TWA	0.5 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Benzene, ethyl- (CAS 100-41-4)	TWA	20 ppm
Hydrogen sulfide (CAS 7783-06-4)	STEL	15 ppm
	TWA	10 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Xylene (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	15.5 mg/m ³ 5 ppm
	TWA	3 mg/m ³ 1 ppm
	STEL	543 mg/m ³ 125 ppm
Benzene, ethyl- (CAS 100-41-4)	TWA	434 mg/m ³ 100 ppm
	STEL	21 mg/m ³ 15 ppm
	TWA	14 mg/m ³ 10 ppm
Toluene (CAS 108-88-3)	TWA	188 mg/m ³ 50 ppm
Xylene (CAS 1330-20-7)	STEL	651 mg/m ³ 150 ppm
	TWA	434 mg/m ³ 100 ppm

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Benzene, ethyl- (CAS 100-41-4)	PEL	435 mg/m ³ 100 ppm
	PEL	2000 mg/m ³ 500 ppm
Xylene (CAS 1330-20-7)	PEL	435 mg/m ³ 100 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Benzene (CAS 71-43-2)	Ceiling	25 ppm
	TWA	10 ppm
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	20 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Toluene (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
1- Methyl-naphthalene (CAS 90-12-0)	TWA	0.5 ppm
2- Methyl-naphthalene (CAS 91-57-6)	TWA	0.5 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm
	TWA	0.5 ppm
Benzene, ethyl- (CAS 100-41-4)	TWA	20 ppm
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm
	TWA	1 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Xylene (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	1 ppm
	TWA	0.1 ppm
Benzene, ethyl- (CAS 100-41-4)	STEL	545 mg/m ³
		125 ppm
	TWA	435 mg/m ³
Hydrogen sulfide (CAS 7783-06-4)		100 ppm
	Ceiling	15 mg/m ³
Petroleum (CAS 8002-05-9)		10 ppm
	Ceiling	1800 mg/m ³
Toluene (CAS 108-88-3)	TWA	350 mg/m ³
	STEL	560 mg/m ³
		150 ppm
	TWA	375 mg/m ³
		100 ppm

Biological limit values**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	25 µg/g	S-Phenylmercapturic acid	Creatinine in urine	*
Benzene, ethyl- (CAS 100-41-4)	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/L	Toluene	Urine	*
	0.02 mg/L	Toluene	Blood	*
Xylene (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines See above

Canada - Alberta OELs: Skin designation

Benzene (CAS 71-43-2)

Can be absorbed through the skin.

Toluene (CAS 108-88-3)	Can be absorbed through the skin.
Canada - British Columbia OELs: Skin designation	
1-Methylnaphthalene (CAS 90-12-0)	Can be absorbed through the skin.
2-Methylnaphthalene (CAS 91-57-6)	Can be absorbed through the skin.
Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Canada - Manitoba OELs: Skin designation	
1-Methylnaphthalene (CAS 90-12-0)	Can be absorbed through the skin.
2-Methylnaphthalene (CAS 91-57-6)	Can be absorbed through the skin.
Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Canada - Ontario OELs: Skin designation	
1-Methylnaphthalene (CAS 90-12-0)	Can be absorbed through the skin.
2-Methylnaphthalene (CAS 91-57-6)	Can be absorbed through the skin.
Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Canada - Quebec OELs: Skin designation	
Toluene (CAS 108-88-3)	Can be absorbed through the skin.
Canada - Saskatchewan OELs: Skin designation	
Toluene (CAS 108-88-3)	Can be absorbed through the skin.
US ACGIH Threshold Limit Values: Skin designation	
1-Methylnaphthalene (CAS 90-12-0)	Can be absorbed through the skin.
2-Methylnaphthalene (CAS 91-57-6)	Can be absorbed through the skin.
Benzene (CAS 71-43-2)	Can be absorbed through the skin.

Appropriate engineering controls Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Nitrile rubber Viton™. Polyethylene. Tychem™ BR/LV. Tychem™ TK. Confirm with a reputable supplier first.
Other	As required by employer code.
Respiratory protection	Do not attempt rescue of an hydrogen sulfide knockdown victim without the use of proper respiratory protective equipment. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).
Thermal hazards	Not applicable.

General hygiene considerations Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke.

9. Physical and Chemical Properties

Appearance	Slurry
Physical state	Liquid.
Form	Liquid.
Color	dark brown
Odor	Rotten egg odour if H2S present. Note: H2S deadens the sense of smell. Absence of rotten eggs smell does not mean absence of H2S.
Odor threshold	0.55 mg/m3 for sulphur free product, <0.15 ppm for H2S
pH	8.3
Melting point/freezing point	-99.4 °F (-73 °C)
Initial boiling point and boiling range	86 - 460.4 °F (30 - 238 °C)
Pour point	Not available.
Specific gravity	0.8 - 0.9
Partition coefficient (n-octanol/water)	Not available.
Flash point	113.0 °F (45.0 °C) Closed Cup
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) > 1.1 %

Flammability limit - upper (%) < 5.9 %

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 40 mmHg

Vapor density 4.7 - 5 (Air=1)

Relative density Not available.

Solubility(ies) Insoluble

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Thick

Other information

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

10. Stability and Reactivity

Reactivity May react with incompatible materials.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Chemical stability Stable under recommended storage conditions.

Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Do not mix with other chemicals.

Incompatible materials Acids. Oxidizers.

Hazardous decomposition products May include and are not limited to: Oxides of nitrogen. Hydrogen sulphide. Oxides of sulfur. Aromatic hydrocarbons.

11. Toxicological Information

Routes of exposure Eye, Skin contact, Inhalation, Ingestion.

Information on likely routes of exposure

Ingestion Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia. May cause stomach distress, nausea or vomiting.

Inhalation May cause drowsiness and dizziness.

Skin contact No adverse effects due to skin contact are expected.

Eye contact Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. May cause respiratory irritation.

Components	Species	Test Results
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1-Methylnaphthalene (CAS 90-12-0)

Acute*Dermal*

LD50 Not available

Inhalation

LC50 Not available

Oral

LD50 Rat 1840 mg/kg, HSDB

2-Methylnaphthalene (CAS 91-57-6)

Acute*Dermal*

LD50 Not available

Components	Species	Test Results
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rat	1630 mg/kg, HSDB
Benzene (CAS 71-43-2)		
Acute		
<i>Dermal</i>		
LD50	Guinea pig	> 8260 mg/kg, HSDB
	Guinea pig; Rabbit	> 9.4 ml/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Mouse	9980 ppm, 7 Hours, ECHA
	Rat	43767 mg/m3, 4 Hours, ECHA
		13700 ppm, 4 Hours, ECHA
		10000 ppm, 7 Hours, HSDB
		31.8 mg/l/4h, HSDB
<i>Oral</i>		
LD50	Mouse	4700 mg/kg, HSDB
	Rat	> 2000 mg/kg, ECHA
		5970 mg/kg, ECHA
		4700 mg/kg, HSDB
		3306 mg/kg, HSDB
Benzene, ethyl- (CAS 100-41-4)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	17800 mg/kg, HSDB
		15380 mg/kg, CCOHS: Cheminfo
		17.8 ml/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Mouse	> 8000 ppm, 20 Minutes, ECHA
	Rat	4000 ppm, 4 Hours, CCOHS: Cheminfo
<i>Oral</i>		
LD50	Rat	5460 mg/kg, HSDB
		3500 mg/kg, Sigma Aldrich
		5.5 g/kg, ECHA/HSDB
Hydrogen sulfide (CAS 7783-06-4)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Monkey	0.7 mg/L, 35 Minutes, HSDB
	Mouse	1610 mg/m3, ECHA
		1110 mg/m3, ECHA
		940 mg/m3, ECHA
		634 ppm, 1 Hours, ECHA
		1.5 mg/L, 18 Minutes, HSDB
		0.4 mg/L, 410 Minutes, HSDB
	Rat	> 0.4 mg/L, 960 Minutes, HSDB
		1160 mg/m3, ECHA
		1010 mg/m3, ECHA
		950 mg/m3, ECHA
		712 ppm, 1 Hours, HSDB/ECHA

Components	Species	Test Results
		587 ppm, ECHA
		501 ppm, ECHA
		444 ppm, 4 Hours
		356 ppm, 4 Hours, EIGA
		335 ppm, ECHA
		1.5 mg/L, 14 Minutes, HSDB
<i>Oral</i>		
LD50	Not available	
Iron (CAS 7439-89-6)		
Acute		
<i>Inhalation</i>		
LC50	Guinea pig; Hamster, Syrian; Mouse; Rat	> 100 mg/m3, 6 Hours
	Not available	
	Rat	> 100 mg/m3, 6 Hours
LD50	Rat	> 5 mg/kg
<i>Oral</i>		
LD50	Rat	984 mg/kg
		98.6 g/kg
Petroleum (CAS 8002-05-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	>= 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	10000 mg/l/4h
<i>Oral</i>		
LD50	Rat	>= 4300 mg/kg
Sulfur (CAS 7704-34-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	>= 2000 mg/kg
	Rat	> 2000 mg/kg, 24 Hours
<i>Inhalation</i>		
LC50	Rat	> 5.4 g/m3, 4 Hours
		> 5.4 mg/L, 4 Hours
		>= 6.2 mg/l/4h
<i>Oral</i>		
LD50	Human	> 5000 mg/kg
	Rat	> 2200 mg/kg
		>= 3000 mg/kg
Toluene (CAS 108-88-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, 24 Hours, ECHA
		12124 mg/kg, HSDB
		14.1 ml/kg, HSDB
<i>Inhalation</i>		
LC50	Mouse	6405 - 7436 ppm, 6 Hours, ECHA
		5320 ppm, 8 Hours, ECHA/HSDB
		400 ppm, 24 Hours, HSDB
	Rat	26700 ppm, 1 Hours, HSDB
		12200 ppm, 2 Hours, HSDB
		8000 ppm, 4 Hours, HSDB

Components	Species	Test Results
		5879 - 6281 ppm, 6 Hours, ECHA 30 mg/L, 4 Hours, ECHA 28.1 mg/L, 4 Hours, ECHA 25.7 mg/L, 4 Hours, ECHA
<i>Oral</i> LD50	Rat	> 5000 mg/kg, ECHA 5580 mg/kg, ECHA 2.6 g/kg, HSDB
Xylene (CAS 1330-20-7) Acute <i>Dermal</i> LD50	Rabbit	> 5000 ml/kg, 4 Hours, ECHA > 43 g/kg, HSDB 12126 mg/kg, 24 Hours, ECHA
<i>Inhalation</i> LC50	Mouse	3907 ppm, 6 Hours, HSDB 3907 mg/L, 6 Hours, HSDB
	Rat	6700 ppm, 4 Hours, ECHA 6580 ppm, 4 Hours, ECHA 6350 ppm, 4 Hours, ECHA/HSDB 6247 ppm, 4 Hours, ECHA 5922 ppm, 4 Hours, ECHA
<i>Oral</i> LD50	Mouse	5627 mg/kg, ECHA/HSDB 5251 mg/kg, ECHA
	Rat	> 4000 mg/kg, ECHA 6670 mg/kg, HSDB 4300 mg/kg, ECHA/HSDB 3523 mg/kg 10 ml/kg, ECHA
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Corneal opacity value	Not available.	
Iris lesion value	Not available.	
Conjunctival reddening value	Not available.	
Conjunctival oedema value	Not available.	
Recover days	Not available.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Mutagenicity	May cause genetic defects. The mutagenicity of benzene has been extensively studied in rats and mice using inhalation and oral exposure techniques. Positive results have been obtained for many tests including and not limited to chromosome aberrations, micronuclei, sister chromatid exchanges, point mutations, DNA adducts, DNA repair, DNA damage, aneuploidy and sperm head abnormalities.	
Carcinogenicity	Benzene and certain polycyclic aromatic hydrocarbons (PAHs) are known carcinogens. See below.	

ACGIH Carcinogens

Benzene (CAS 71-43-2) A1 Confirmed human carcinogen.
 Benzene, ethyl- (CAS 100-41-4) A3 Confirmed animal carcinogen with unknown relevance to humans.

Canada - Alberta OELs: Carcinogen category

Benzene (CAS 71-43-2) Confirmed human carcinogen.

Canada - Manitoba OELs: carcinogenicity

BENZENE (CAS 71-43-2) Confirmed human carcinogen.
 ETHYL BENZENE (CAS 100-41-4) Confirmed animal carcinogen with unknown relevance to humans.

Canada - Quebec OELs: Carcinogen category

Benzene (CAS 71-43-2) Detected carcinogenic effect in humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2) Volume 29, Supplement 7, Volume 100F 1 Carcinogenic to humans.
 Benzene, ethyl- (CAS 100-41-4) Volume 77 - 2B Possibly carcinogenic to humans.
 Petroleum (CAS 8002-05-9) Volume 45 - 3 Not classifiable as to carcinogenicity to humans.
 Toluene (CAS 108-88-3) Volume 47, Volume 71 - 3 Not classifiable as to carcinogenicity to humans.
 Xylene (CAS 1330-20-7) Volume 47, Volume 71 - 3 Not classifiable as to carcinogenicity to humans.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Benzene (CAS 71-43-2)
 Benzene, ethyl- (CAS 100-41-4)

US NTP Report on Carcinogens: Known carcinogen

Benzene (CAS 71-43-2) Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2) Cancer

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Teratogenicity

Xylene is considered fetotoxic in humans, based on observations of reduced fetal weight, delayed ossification and persistent behavioural effects in animal studies in the absence of maternal toxicity.

Toluene (benzene, methyl-) has caused fetotoxicity (reduced fetal weight), behavioural effects (effects on learning and memory) and hearing loss (in males). These effects have been observed in the offspring of rats exposed by inhalation to 1200 or 1800 ppm toluene. These effects were observed in the absence of maternal toxicity.

Specific target organ toxicity - single exposure

May cause respiratory irritation. May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

May be fatal if swallowed and enters airways.

Chronic effects

Prolonged inhalation may be harmful.

12. Ecological Information

Ecotoxicity See below

Ecotoxicological data Components

		Species	Test Results
1-Methylnaphthalene (CAS 90-12-0)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	9 mg/L, 96 hours
2-Methylnaphthalene (CAS 91-57-6)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	1.07 - 1.841 mg/L, 96 hours
Benzene (CAS 71-43-2)			
Algae	IC50	Algae	29 mg/L, 72 Hours
Crustacea	EC50	Daphnia	12.18 mg/L, 48 Hours
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	8.76 - 15.6 mg/L, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	7.2 - 11.7 mg/L, 96 hours

Components	Species	Test Results
Benzene, ethyl- (CAS 100-41-4)		
Algae	IC50	Algae 4.6 mg/L, 72 Hours
Crustacea	EC50	Daphnia 2.1 mg/L, 48 Hours
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 1.37 - 4.4 mg/L, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 7.5 - 11 mg/L, 96 hours
Hydrogen sulfide (CAS 7783-06-4)		
Aquatic		
Fish	LC50	Bluegill (Lepomis macrochirus) 0.009 mg/L, 96 hours
Iron (CAS 7439-89-6)		
Aquatic		
Fish	LC50	Channel catfish (Ictalurus punctatus) > 500 mg/L, 96 hours
Petroleum (CAS 8002-05-9)		
Crustacea	EC50	Daphnia 36 mg/L, 48 Hours
Aquatic		
Fish	LC50	Cutthroat trout (Oncorhynchus clarki) 2.1 - 4.3 mg/L, 96 hours
Sulfur (CAS 7704-34-9)		
Aquatic		
Fish	LC50	Western mosquitofish (Gambusia affinis) > 10000 mg/L, 96 hours
Toluene (CAS 108-88-3)		
Algae	IC50	Algae 433 mg/L, 72 Hours
Crustacea	EC50	Daphnia 7.645 mg/L, 48 Hours
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 5.46 - 9.83 mg/L, 48 hours
Fish	LC50	Coho salmon, silver salmon (Oncorhynchus kisutch) 8.11 mg/L, 96 hours
Xylene (CAS 1330-20-7)		
Aquatic		
Fish	LC50	Bluegill (Lepomis macrochirus) 7.711 - 9.591 mg/L, 96 hours
Persistence and degradability	Non-persistent/ Group 1	
Bioaccumulative potential		
Mobility in soil		
Mobility in general	No data available.	
Other adverse effects	Not available.	
	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation)	

13. Disposal Considerations

Disposal instructions	Review federal, provincial, and local government requirements prior to disposal.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue.

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number	UN1267
Proper shipping name	Petroleum crude oil
Hazard class	3
Packing group	III

Special provisions 144, 357, B1, IB3, T2, TP1
Packaging exceptions 150

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number UN1267
Proper shipping name PETROLEUM CRUDE OIL
Hazard class 3
Packing group III
Special provisions 92, 106, 150

DOT



TDG



15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada CEPA Schedule I: Listed substance

2-Methylnaphthalene (CAS 91-57-6) Listed.
Benzene (CAS 71-43-2) Listed.

Canada NPRI VOCs with Additional Reporting Requirements: Mass reporting threshold/Identification Number

Benzene (CAS 71-43-2) 1 TONNES
Toluene (CAS 108-88-3) 1 TONNES
Xylene (CAS 1330-20-7) 1 TONNES

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Toluene (CAS 108-88-3) Class B

WHMIS 2015 Exemptions Controlled

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Benzene (CAS 71-43-2) Listed.
Benzene, ethyl- (CAS 100-41-4) Listed.
Hydrogen sulfide (CAS 7783-06-4) Listed.
Petroleum (CAS 8002-05-9) Listed.
Toluene (CAS 108-88-3) Listed.
Xylene (CAS 1330-20-7) Listed.

US EPCRA Section 304 Extremely Haz. Subs. & CERCLA Haz. Subs.: Section 304 EHS reportable quantity

Hydrogen sulfide (CAS 7783-06-4) 100 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2) Cancer
Central nervous system

Blood
Aspiration
Skin
Eye
respiratory tract irritation
Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Petroleum	8002-05-9	60- 100
Hydrogen sulfide	7783-06-4	<1
Benzene	71-43-2	<0.1
Benzene, ethyl-	100-41-4	<0.1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

2-Methylnaphthalene (CAS 91-57-6)
Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrogen sulfide (CAS 7783-06-4)

US state regulations

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. See below

US - California Hazardous Substances (Director's): Listed substance

2-Methylnaphthalene (CAS 91-57-6) Listed.
Benzene (CAS 71-43-2) Listed.
Benzene, ethyl- (CAS 100-41-4) Listed.
Hydrogen sulfide (CAS 7783-06-4) Listed.
Iron (CAS 7439-89-6) Listed.
Sulfur (CAS 7704-34-9) Listed.
Toluene (CAS 108-88-3) Listed.
Xylene (CAS 1330-20-7) Listed.

US - Illinois Chemical Safety Act: Listed substance

Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US - Louisiana Spill Reporting: Listed substance

Benzene (CAS 71-43-2) Listed.
Benzene, ethyl- (CAS 100-41-4) Listed.
Hydrogen sulfide (CAS 7783-06-4) Listed.
Petroleum (CAS 8002-05-9) Listed.
Toluene (CAS 108-88-3) Listed.
Xylene (CAS 1330-20-7) Listed.

US - Michigan Critical Materials Register: Parameter number

Benzene (CAS 71-43-2) BENZENE
Toluene (CAS 108-88-3) TOLUENE
Xylene (CAS 1330-20-7) XYLENE (ALL ISOMERS)

US - Minnesota Haz Subs: Listed substance

Benzene (CAS 71-43-2) Listed.
Benzene, ethyl- (CAS 100-41-4) Listed.
Hydrogen sulfide (CAS 7783-06-4) Listed.
Petroleum (CAS 8002-05-9) Listed.
Toluene (CAS 108-88-3) Listed.

Xylene (CAS 1330-20-7) Listed.

US - New Jersey RTK - Substances: Listed substance

1-Methylnaphthalene (CAS 90-12-0)
2-Methylnaphthalene (CAS 91-57-6)
Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Sulfur (CAS 7704-34-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US - North Carolina Toxic Air Pollutants: Listed substance

Benzene (CAS 71-43-2)
Hydrogen sulfide (CAS 7783-06-4)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US - Pennsylvania RTK - Hazardous Substances: Special hazard

Benzene (CAS 71-43-2)

US - Texas Effects Screening Levels: Listed substance

1-Methylnaphthalene (CAS 90-12-0) Listed.
2-Methylnaphthalene (CAS 91-57-6) Listed.
Benzene (CAS 71-43-2) Listed.
Benzene, ethyl- (CAS 100-41-4) Listed.
Hydrogen sulfide (CAS 7783-06-4) Listed.
Iron (CAS 7439-89-6) Listed.
Petroleum (CAS 8002-05-9) Listed.
Sulfur (CAS 7704-34-9) Listed.
Toluene (CAS 108-88-3) Listed.
Xylene (CAS 1330-20-7) Listed.

US - Washington Chemical of High Concern to Children: Listed substance

Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Toluene (CAS 108-88-3)

US. Massachusetts RTK - Substance List

1-Methylnaphthalene (CAS 90-12-0)
Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Sulfur (CAS 7704-34-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US. New Jersey Worker and Community Right-to-Know Act

Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US. Pennsylvania Worker and Community Right-to-Know Law

1-Methylnaphthalene (CAS 90-12-0)
2-Methylnaphthalene (CAS 91-57-6)
Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Sulfur (CAS 7704-34-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US. Rhode Island RTK

Benzene (CAS 71-43-2)
Benzene, ethyl- (CAS 100-41-4)
Hydrogen sulfide (CAS 7783-06-4)
Petroleum (CAS 8002-05-9)
Sulfur (CAS 7704-34-9)
Toluene (CAS 108-88-3)
Xylene (CAS 1330-20-7)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Benzene (CAS 71-43-2) Listed: February 27, 1987
 Benzene, ethyl- (CAS 100-41-4) Listed: June 11, 2004

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Benzene (CAS 71-43-2) Listed: December 26, 1997
 Toluene (CAS 108-88-3) Listed: January 1, 1991

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

Benzene (CAS 71-43-2) Listed: December 26, 1997

Inventory status

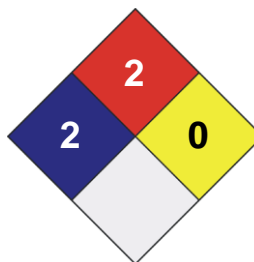
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	* 2
FLAMMABILITY	2
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X

**Disclaimer**

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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01

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Prepared by

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Other information

For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.