



## Safety Data Sheet

**Material Name:** Bakken Crude Oil

**Product Synonym(s):** Crude Petroleum, Hydrocarbons of Petroleum

### \*\*\* Section 1 - Product and Company Identification \*\*\*

#### Manufacturer Information

Statoil

Phone: 512-427-3300

6300 Bridge Point Parkway

Building 2, Suite 500

Austin, TX 78730

### \*\*\* Section 2 - Hazards Identification \*\*\*

#### GHS Classification:

Flammable Liquids - Category 2

Carcinogenicity - Category 1B

Specific Target Organ Toxicity Repeat Exposure - Category 2

#### GHS LABEL ELEMENTS

##### Symbol(s)



##### Signal Word

Danger

##### Hazard Statements

Highly flammable liquid and vapor.

May cause cancer.

May cause damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure.

##### Precautionary Statements

###### Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray

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

## Response

IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF exposed or concerned: Get medical advice/attention.

In case of fire: Use water spray, fog or fire fighting foam.

## Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

## Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

### \*\*\* Section 3 - Composition / Information on Ingredients \*\*\*

CAS #	Component	Percent
Not Available	C10 to C49+ isoparaffins	32.5
Not Available	C10 to C49+ cyclic paraffins	19.8
Not Available	C12+ mono-aromatics	8.5
Not Available	Poly aromatic hydrocarbons	4.9
Not Available	C10 to C49+ n paraffins	3.7
Not Available	C16+ di-aromatics	2.8
Not Available	C7 cyclic paraffins	2.6
Not Available	C8 cyclic paraffins	2.3
Not Available	Trimethyl benzenes	2.3
Not Available	Dimethyl naphthalene	1.5
142-82-5	n-Heptane	1
96-37-7	Methylcyclopentane	0.9
111-84-2	Nonane	0.9
Not Available	Dimethyl benzenes	0.9
75-28-5	Isobutane	0.9
111-65-9	Octane	0.9
Not Available	Trimethyl naphthalene	0.9
110-54-3	Hexane	0.9
96-14-0	3-Methylpentane	0.8
592-27-8	2-Methylheptane	0.8
591-76-4	2-Methylhexane	0.8
109-66-0	Pentane	0.8
108-88-3	Toluene	0.8
124-18-5	Decane	0.7
Not Available	Tetramethyl benzenes	0.7
Not Available	Pentamethyl benzenes	0.6
78-78-4	Isopentane	0.6
Not Available	Low level and unidentified hydrocarbons	0.5
107-83-5	2-Methylpentane	0.5

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589-34-4	3-Methylhexane	0.5
Not Available	C10 cyclic paraffins	0.5
106-42-3	p-Xylene	0.4
108-38-3	m-Xylene	0.4
589-81-1	Heptane, 3-methyl-	0.4
Not Available	C9 cyclic paraffins	0.4
90-12-0	1-Methylnaphthalene	0.3
Not Available	Decane isomers	0.3
589-53-7	4-Methylheptane	0.2
91-57-6	2-Methylnaphthalene	0.2
74-98-6	Propane	0.2
95-47-6	o-Xylene	0.1
91-20-3	Naphthalene	0.1
100-41-4	Ethylbenzene	0.1
79-29-8	2,3-Dimethylbutane	0.1
71-43-2	Benzene	0.1
584-94-1	2,3-Dimethylhexane	0.1
583-48-2	Hexane, 3,4-dimethyl-	0.1
Not Available	Nonane isomers	0.1

## \*\*\* Section 4 - First Aid Measures \*\*\*

### First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

### First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

### First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

### First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

## \*\*\* Section 5 - Fire Fighting Measures \*\*\*

### General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

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## Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

## Extinguishing Media

**SMALL FIRES:** Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

**LARGE FIRES:** Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

## Unsuitable Extinguishing Media

None

## Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

## \*\*\* Section 6 - Accidental Release Measures \*\*\*

### Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

### Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

### Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Product may release substantial amounts of flammable vapors and gases (e.g., methane, ethane, and propane), at or below ambient temperature depending on source and process conditions and pressure.

### Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

### Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection - do not discharge solid water stream patterns into the liquid resulting in splashing.

### Prevention of Secondary Hazards

None

## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling Procedures

Handle as a flammable liquid. Keep away from heat, sparks, and open flame. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

### Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

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## Incompatibilities

Keep away from strong oxidizers.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Component Exposure Limits

#### n-Heptane (142-82-5)

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)  
500 ppm STEL (listed under Heptane, all isomers)  
OSHA: 500 ppm TWA; 2000 mg/m3 TWA  
NIOSH: 85 ppm TWA; 350 mg/m3 TWA  
440 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

#### Octane (111-65-9)

ACGIH: 300 ppm TWA  
OSHA: 500 ppm TWA; 2350 mg/m3 TWA  
NIOSH: 75 ppm TWA; 350 mg/m3 TWA  
385 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

#### Nonane (111-84-2)

ACGIH: 200 ppm TWA  
NIOSH: 200 ppm TWA; 1050 mg/m3 TWA

#### Hexane (110-54-3)

ACGIH: 50 ppm TWA  
Skin - potential significant contribution to overall exposure by the cutaneous route  
OSHA: 500 ppm TWA; 1800 mg/m3 TWA  
NIOSH: 50 ppm TWA; 180 mg/m3 TWA

#### Isobutane (75-28-5)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)  
NIOSH: 800 ppm TWA; 1900 mg/m3 TWA

#### Toluene (108-88-3)

ACGIH: 20 ppm TWA  
OSHA: 200 ppm TWA  
300 ppm Ceiling  
NIOSH: 100 ppm TWA; 375 mg/m3 TWA  
150 ppm STEL; 560 mg/m3 STEL

#### Pentane (109-66-0)

ACGIH: 600 ppm TWA (listed under Pentane, all isomers)  
OSHA: 1000 ppm TWA; 2950 mg/m3 TWA  
NIOSH: 120 ppm TWA; 350 mg/m3 TWA  
610 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)

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**2-Methylhexane (591-76-4)**

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)  
500 ppm STEL (listed under Heptane, all isomers)

**Isopentane (78-78-4)**

ACGIH: 600 ppm TWA (listed under Pentane, all isomers)

**3-Methylhexane (589-34-4)**

ACGIH: 400 ppm TWA (listed under Heptane, all isomers)  
500 ppm STEL (listed under Heptane, all isomers)

**p-Xylene (106-42-3)**

ACGIH: 100 ppm TWA  
150 ppm STEL  
NIOSH: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
150 ppm STEL; 655 mg/m<sup>3</sup> STEL

**m-Xylene (108-38-3)**

ACGIH: 100 ppm TWA  
150 ppm STEL  
NIOSH: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
150 ppm STEL; 655 mg/m<sup>3</sup> STEL

**1-Methylnaphthalene (90-12-0)**

ACGIH: 0.5 ppm TWA  
Skin - potential significant contribution to overall exposure by the cutaneous route

**2-Methylnaphthalene (91-57-6)**

ACGIH: 0.5 ppm TWA  
Skin - potential significant contribution to overall exposure by the cutaneous route

**Propane (74-98-6)**

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)  
OSHA: 1000 ppm TWA; 1800 mg/m<sup>3</sup> TWA  
NIOSH: 1000 ppm TWA; 1800 mg/m<sup>3</sup> TWA

**o-Xylene (95-47-6)**

ACGIH: 100 ppm TWA  
150 ppm STEL  
NIOSH: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
150 ppm STEL; 655 mg/m<sup>3</sup> STEL

**Ethylbenzene (100-41-4)**

ACGIH: 20 ppm TWA  
OSHA: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
NIOSH: 100 ppm TWA; 435 mg/m<sup>3</sup> TWA  
125 ppm STEL; 545 mg/m<sup>3</sup> STEL

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## **Benzene (71-43-2)**

ACGIH: 0.5 ppm TWA

2.5 ppm STEL

Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA

10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 1 ppm TWA

5 ppm STEL (see 29 CFR 1910.1028)

25 ppm Ceiling

NIOSH: 0.1 ppm TWA

1 ppm STEL

## **Naphthalene (91-20-3)**

ACGIH: 10 ppm TWA

15 ppm STEL

Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA: 10 ppm TWA; 50 mg/m<sup>3</sup> TWA

NIOSH: 10 ppm TWA; 50 mg/m<sup>3</sup> TWA

15 ppm STEL; 75 mg/m<sup>3</sup> STEL

## **Engineering Measures**

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

## **Personal Protective Equipment: Respiratory**

A NIOSH/ MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

## **Personal Protective Equipment: Hands**

Gloves constructed of nitrile or neoprene are recommended.

## **Personal Protective Equipment: Eyes**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

## **Personal Protective Equipment: Skin and Body**

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

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## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

<b>Appearance:</b>	Thick, dark yellow to brown or greenish black	<b>Odor:</b>	Moderate, Characteristic
<b>Physical State:</b>	Liquid	<b>pH:</b>	Not Determined
<b>Vapor Pressure:</b>	Not Determined	<b>Vapor Density:</b>	Not Determined
<b>Boiling Point:</b>	130°F	<b>Melting Point:</b>	Not Determined
<b>Solubility (H<sub>2</sub>O):</b>	Insoluble to slightly soluble	<b>Specific Gravity:</b>	0.7601
<b>Evaporation Rate:</b>	Not Determined	<b>VOC:</b>	Present per speciated review
<b>Octanol/H<sub>2</sub>O Coeff.:</b>	Not Determined	<b>Flash Point:</b>	<-50°F
<b>Flash Point Method:</b>	Setaflash	<b>Upper Flammability Limit (UFL):</b>	Not Determined
<b>Lower Flammability Limit (LFL):</b>	Not Determined	<b>Burning Rate:</b>	Not Determined
<b>Auto Ignition:</b>	Not Determined		

## \*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\*

### Chemical Stability

This is a stable material.

### Hazardous Reaction Potential

Will not occur.

### Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

### Incompatible Products

Keep away from strong oxidizers.

### Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute Toxicity

#### A: General Product Information

Harmful if swallowed.

#### B: Component Analysis - LD<sub>50</sub>/LC<sub>50</sub>

##### n-Heptane (142-82-5)

Inhalation LC<sub>50</sub> Rat 103 g/m<sup>3</sup> 4 h; Oral LD<sub>50</sub> Mouse 5000 mg/kg; Dermal LD<sub>50</sub> Rabbit 3000 mg/kg

##### Octane (111-65-9)

Inhalation LC<sub>50</sub> Rat 118 g/m<sup>3</sup> 4 h; Inhalation LC<sub>50</sub> Rat 25260 ppm 4 h

##### Nonane (111-84-2)

Inhalation LC<sub>50</sub> Rat 3200 ppm 4 h

##### Hexane (110-54-3)

Inhalation LC<sub>50</sub> Rat 48000 ppm 4 h; Oral LD<sub>50</sub> Rat 25 g/kg; Dermal LD<sub>50</sub> Rabbit 3000 mg/kg

##### Isobutane (75-28-5)

Inhalation LC<sub>50</sub> Rat 658 mg/L 4 h



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**Toluene (108-88-3)**

Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

**Pentane (109-66-0)**

Inhalation LC50 Rat 364 g/m<sup>3</sup> 4 h; Dermal LD50 Rabbit 3000 mg/kg; Oral LD50 Rat >2000 mg/kg

**Decane (124-18-5)**

Inhalation LC50 Mouse 72300 mg/m<sup>3</sup> 2 h; Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rat >2000 mg/kg

**Isopentane (78-78-4)**

Inhalation LC50 Rat 280000 mg/m<sup>3</sup> 4 h

**p-Xylene (106-42-3)**

Inhalation LC50 Rat 4550 ppm 4 h; Oral LD50 Rat >3392 mg/kg

**m-Xylene (108-38-3)**

Oral LD50 Rat 5000 mg/kg; Dermal LD50 Rabbit 14100 µL/kg

**1-Methylnaphthalene (90-12-0)**

Oral LD50 Rat 1840 mg/kg

**2-Methylnaphthalene (91-57-6)**

Oral LD50 Rat 1630 mg/kg

**Propane (74-98-6)**

Inhalation LC50 Rat 658 mg/L 4 h

**o-Xylene (95-47-6)**

Inhalation LC50 Rat 2180 ppm 4 h; Oral LD50 Rat 3609 mg/kg

**Ethylbenzene (100-41-4)**

Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

**Benzene (71-43-2)**

Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

**Naphthalene (91-20-3)**

Inhalation LC50 Rat >340 mg/m<sup>3</sup> 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

## Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

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## **Potential Health Effects: Eye Critical Damage/ Stimulativeness**

Contact with eyes may cause moderate to severe irritation.

## **Potential Health Effects: Ingestion**

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea.

## **Potential Health Effects: Inhalation**

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

## **Respiratory Organs Sensitization/Skin Sensitization**

This product is not reported to have any skin sensitization effects.

## **Generative Cell Mutagenicity**

Some crude oils and crude oil fractions have been positive in mutagenicity studies.

## **Carcinogenicity**

### **A: General Product Information**

May cause cancer.

### **B: Component Carcinogenicity**

#### **Toluene (108-88-3)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

#### **p-Xylene (106-42-3)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

#### **m-Xylene (108-38-3)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

#### **1-Methylnaphthalene (90-12-0)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

#### **2-Methylnaphthalene (91-57-6)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

#### **o-Xylene (95-47-6)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999] (listed under Xylenes) (Group 3 (not classifiable))

#### **Ethylbenzene (100-41-4)**

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

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## **Benzene (71-43-2)**

ACGIH: A1 - Confirmed Human Carcinogen

OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 100F [2012]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

## **Naphthalene (91-20-3)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)

IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

## **Reproductive Toxicity**

This product is not reported to have any reproductive toxicity effects.

## **Specified Target Organ General Toxicity: Single Exposure**

This product is not reported to have any specific target organ general toxicity single exposure effects.

## **Specified Target Organ General Toxicity: Repeated Exposure**

May cause damage to organs (liver, kidneys, blood, nervous system and skin) through prolonged or repeated exposure.

## **Aspiration Respiratory Organs Hazard**

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

## **\*\*\* Section 12 - Ecological Information \*\*\***

### **Ecotoxicity**

#### **A: General Product Information**

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

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## B: Component Analysis - Ecotoxicity - Aquatic Toxicity

### n-Heptane (142-82-5)

#### Test & Species

#### Conditions

96 Hr LC50 Cichlid fish	375.0 mg/L
24 Hr EC50 Daphnia magna	>10 mg/L

### Octane (111-65-9)

#### Test & Species

#### Conditions

48 Hr EC50 water flea	0.38 mg/L
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### Hexane (110-54-3)

#### Test & Species

#### Conditions

96 Hr LC50 Pimephales promelas	2.1-2.98 mg/L [flow-through]
24 Hr EC50 Daphnia magna	>1000 mg/L

### Toluene (108-88-3)

#### Test & Species

#### Conditions

96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

### Pentane (109-66-0)

#### Test & Species

#### Conditions

96 Hr LC50 Oncorhynchus mykiss	9.87 mg/L
96 Hr LC50 Pimephales promelas	11.59 mg/L

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96 Hr LC50 <i>Lepomis macrochirus</i>	9.99 mg/L
48 Hr EC50 <i>Daphnia magna</i>	9.74 mg/L

### Decane (124-18-5)

#### Test & Species

#### Conditions

24 Hr EC50 <i>Chlorella vulgaris</i>	0.043 mg/L
48 Hr EC50 <i>Daphnia magna</i>	0.029 mg/L

### Isopentane (78-78-4)

#### Test & Species

#### Conditions

48 Hr EC50 <i>Daphnia magna</i>	2.3 mg/L
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### p-Xylene (106-42-3)

#### Test & Species

#### Conditions

96 Hr LC50 <i>Pimephales promelas</i>	7.2-9.9 mg/L [static]
96 Hr LC50 <i>Oncorhynchus mykiss</i>	2.6 mg/L
96 Hr LC50 <i>Oncorhynchus mykiss</i>	2.6 mg/L [static]
96 Hr LC50 <i>Poecilia reticulata</i>	8.8 mg/L [semi-static]
3 Hr EC50 <i>Chlorella vulgaris</i>	105.1 mg/L
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	3.2 mg/L [static]
48 Hr EC50 <i>Daphnia magna</i>	3.55 - 6.31 mg/L [Static]

### m-Xylene (108-38-3)

#### Test & Species

#### Conditions

96 Hr LC50 <i>Pimephales promelas</i>	14.3-18 mg/L [flow-through]
96 Hr LC50 <i>Oncorhynchus mykiss</i>	8.4 mg/L [semi-static]
96 Hr LC50 <i>Poecilia reticulata</i>	12.9 mg/L [semi-static]
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	4.9 mg/L [static]
48 Hr EC50 <i>Daphnia magna</i>	2.81 - 5.0 mg/L [Static]

### o-Xylene (95-47-6)

#### Test & Species

#### Conditions

96 Hr LC50 <i>Pimephales promelas</i>	11.6-22.4 mg/L [flow-through]
96 Hr LC50 <i>Lepomis macrochirus</i>	11.6-22.4 mg/L [flow-through]
96 Hr LC50 <i>Oncorhynchus mykiss</i>	5.59-11.6 mg/L [flow-through]

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96 Hr LC50 <i>Poecilia reticulata</i>	12 mg/L
192 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	4.2 mg/L
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	4.7 mg/L [static]
48 Hr EC50 <i>Daphnia magna</i>	3.2 mg/L
48 Hr EC50 <i>Daphnia magna</i>	2.61 - 5.59 mg/L [Flow through]
48 Hr EC50 <i>Daphnia magna</i>	0.78 - 2.51 mg/L [Static]

## Ethylbenzene (100-41-4)

Test & Species	Conditions
96 Hr LC50 <i>Oncorhynchus mykiss</i>	11.0-18.0 mg/L [static]
96 Hr LC50 <i>Oncorhynchus mykiss</i>	4.2 mg/L [semi-static]
96 Hr LC50 <i>Pimephales promelas</i>	7.55-11 mg/L [flow-through]
96 Hr LC50 <i>Lepomis macrochirus</i>	32 mg/L [static]
96 Hr LC50 <i>Pimephales promelas</i>	9.1-15.6 mg/L [static]
96 Hr LC50 <i>Poecilia reticulata</i>	9.6 mg/L [static]
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	4.6 mg/L
96 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	>438 mg/L
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	2.6 - 11.3 mg/L [static]
96 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	1.7 - 7.6 mg/L [static]
48 Hr EC50 <i>Daphnia magna</i>	1.8 - 2.4 mg/L

## Benzene (71-43-2)

Test & Species	Conditions
96 Hr LC50 <i>Pimephales promelas</i>	10.7-14.7 mg/L [flow-through]
96 Hr LC50 <i>Oncorhynchus mykiss</i>	5.3 mg/L [flow-through]
96 Hr LC50 <i>Lepomis macrochirus</i>	22.49 mg/L [static]
96 Hr LC50 <i>Poecilia reticulata</i>	28.6 mg/L [static]
96 Hr LC50 <i>Pimephales promelas</i>	22330-41160 µg/L [static]
96 Hr LC50 <i>Lepomis macrochirus</i>	70000-142000 µg/L [static]
72 Hr EC50 <i>Pseudokirchneriella subcapitata</i>	29 mg/L
48 Hr EC50 <i>Daphnia magna</i>	8.76 - 15.6 mg/L [Static]

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Material Name: Bakken Crude Oil

48 Hr EC50 Daphnia magna 10 mg/L

## Naphthalene (91-20-3)

### Test & Species

### Conditions

96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

## Persistence/Degradability

No information available.

## Bioaccumulation

No information available.

## Mobility in Soil

No information available.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

### Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

## \*\*\* Section 14 - Transportation Information \*\*\*

### DOT Information

Shipping Name: Petroleum Crude Oil

Hazard Class: 3

UN #: 1267

Packing Group: I

# Safety Data Sheet

Material Name: Bakken Crude Oil

## \*\*\* Section 15 - Regulatory Information \*\*\*

### Regulatory Information

#### US Federal Regulations

#### Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

##### Hexane (110-54-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

##### Toluene (108-88-3)

CERCLA: 1000 lb final RQ; 454 kg final RQ

##### p-Xylene (106-42-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

##### m-Xylene (108-38-3)

CERCLA: 1000 lb final RQ; 454 kg final RQ

##### o-Xylene (95-47-6)

CERCLA: 1000 lb final RQ; 454 kg final RQ

##### Ethylbenzene (100-41-4)

SARA 313: 0.1 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

##### Benzene (71-43-2)

SARA 313: 0.1 % de minimis concentration

CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

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

SARA 313: 0.1 % de minimis concentration

CERCLA: 100 lb final RQ; 45.4 kg final RQ



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**Material Name: Bakken Crude Oil**

## State Regulations

### A: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
n-Heptane	142-82-5	Yes	Yes	Yes	Yes	Yes	No
Methylcyclopentane	96-37-7	No	Yes	No	Yes	Yes	No
Octane	111-65-9	Yes	Yes	Yes	Yes	Yes	No
Nonane	111-84-2	Yes	Yes	Yes	Yes	Yes	No
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	No
Isobutane	75-28-5	No	Yes	No	Yes	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
3-Methylpentane	96-14-0	No	Yes	No	No	Yes	No
Pentane	109-66-0	Yes	Yes	Yes	Yes	Yes	No
2-Methylhexane	591-76-4	No	Yes	No	No	Yes	No
Decane	124-18-5	No	No	No	Yes	Yes	No
Isopentane	78-78-4	No	Yes	No	Yes	Yes	No
3-Methylhexane	589-34-4	No	Yes	No	Yes	Yes	No
2-Methylpentane	107-83-5	No	Yes	Yes	Yes	Yes	No
p-Xylene	106-42-3	Yes	Yes	No	Yes	Yes	No
m-Xylene	108-38-3	Yes	Yes	No	Yes	Yes	No
1-Methylnaphthalene	90-12-0	No	Yes	No	Yes	Yes	No
2-Methylnaphthalene	91-57-6	No	No	No	Yes	No	No
Propane	74-98-6	No	Yes	Yes	Yes	Yes	No
o-Xylene	95-47-6	Yes	Yes	No	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No
2,3-Dimethylbutane	79-29-8	No	Yes	No	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No
2,3-Dimethylhexane	584-94-1	No	Yes	No	No	Yes	No

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

### Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
n-Heptane	142-82-5	1 %
p-Xylene	106-42-3	0.1 %
Ethylbenzene	100-41-4	0.1 %
Benzene	71-43-2	0.1 %

# Safety Data Sheet

**Material Name: Bakken Crude Oil**

## Additional Regulatory Information

### Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
n-Heptane	142-82-5	Yes	DSL	EINECS
Methylcyclopentane	96-37-7	Yes	DSL	EINECS
Octane	111-65-9	Yes	DSL	EINECS
Nonane	111-84-2	Yes	DSL	EINECS
Hexane	110-54-3	Yes	DSL	EINECS
Isobutane	75-28-5	Yes	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
3-Methylpentane	96-14-0	Yes	DSL	EINECS
Pentane	109-66-0	Yes	DSL	EINECS
2-Methylhexane	591-76-4	Yes	DSL	EINECS
2-Methylheptane	592-27-8	No	No	EINECS
Decane	124-18-5	Yes	DSL	EINECS
Isopentane	78-78-4	Yes	DSL	EINECS
3-Methylhexane	589-34-4	Yes	NDSL	EINECS
2-Methylpentane	107-83-5	Yes	DSL	EINECS
p-Xylene	106-42-3	Yes	DSL	EINECS
m-Xylene	108-38-3	Yes	DSL	EINECS
Heptane, 3-methyl-	589-81-1	Yes	NDSL	EINECS
1-Methylnaphthalene	90-12-0	Yes	DSL	EINECS
2-Methylnaphthalene	91-57-6	Yes	DSL	EINECS
Propane	74-98-6	Yes	DSL	EINECS
4-Methylheptane	589-53-7	No	No	EINECS
o-Xylene	95-47-6	Yes	DSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS
Hexane, 3,4-dimethyl-	583-48-2	Yes	NDSL	EINECS
2,3-Dimethylbutane	79-29-8	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS
2,3-Dimethylhexane	584-94-1	No	No	EINECS

## \*\*\* Section 16 - Other Information \*\*\*

### Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

### Literature References

None

End of Sheet