

# SAFETY DATA SHEET



## SUNCOR MKH

OS0000000003

Version 6.1

Revision Date 2019/04/30

Print Date 2019/09/10

### SECTION 1. IDENTIFICATION

Product name : SUNCOR MKH

Synonyms : MacKay River Blend, MacKay River Bitumen/Synthetic Crude Oil Blend, Synbit Blend

Product code : 100219

#### Manufacturer or supplier's details

SUNCOR ENERGY INC.  
P.O. Box 2844, 150 - 6th Avenue South-West  
Calgary Alberta T2P 3E3  
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;  
Canutec Transportation: 1-888-226-8832 (toll-free) or 613-996-6666;  
Poison Control Centre: Consult local telephone directory for emergency number(s).

#### Recommended use of the chemical and restrictions on use

Recommended use : Refinery Feedstock

Prepared by : Product Safety: +1 905-804-4752

### SECTION 2. HAZARDS IDENTIFICATION

#### Emergency Overview

Appearance	liquid
Colour	black
Odour	Hydrocarbon or "rotten egg" if H <sub>2</sub> S present, but odour is an unreliable warning, since it may deaden the sense of smell.

#### GHS Classification

Flammable liquids : Category 1

Skin irritation : Category 2

Germ cell mutagenicity : Category 1B

Carcinogenicity : Category 1A

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure : Category 2 (Blood, thymus, Liver, Auditory system)

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### GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Extremely flammable liquid and vapour.  
Causes skin irritation.  
May cause genetic defects.  
May cause cancer.  
Suspected of damaging fertility or the unborn child.  
May cause damage to organs (Blood, thymus, Liver, Auditory system) through prolonged or repeated exposure.

Precautionary statements

: **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.  
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 dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
IF exposed or concerned: Get medical advice/ attention.  
If skin irritation occurs: Get medical advice/ attention.  
Take off contaminated clothing and wash it before reuse.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
**Storage:**  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
**Disposal:**  
Dispose of contents/ container to an approved waste disposal plant.

### Potential Health Effects

Primary Routes of Entry

: Inhalation  
Eye contact  
Skin contact  
Ingestion

Aggravated Medical Condition

: None known.

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### Other hazards

None known.

### IARC

Group 1: Carcinogenic to humans

Benzene 71-43-2

1,3-Butadiene 106-99-0

### ACGIH

Confirmed human carcinogen

Benzene 71-43-2

Suspected human carcinogen

1,3-Butadiene 106-99-0

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Hazardous components

Chemical name	CAS-No.	Concentration
Bitumens	128683-24-9	50 - 80 %
Gas oils (oil sand), hydrotreated	128683-29-4	10 - 30 %
distillates (petroleum), hydrotreated middle	64742-46-7	4 - 15 %
Naphtha (oil sand), hydrotreated	128683-33-0	4 - 15 %
sulfur	7704-34-9	<= 3.5 %
butane	106-97-8	0 - 2 %
xylene	1330-20-7	0.5 - 1.5 %
isobutane	75-28-5	0.1 - 1 %
n-hexane	110-54-3	0.1 - 0.5 %
benzene	71-43-2	0.1 - 0.2 %
toluene	108-88-3	0.1 - 0.2 %
1,3-butadiene	106-99-0	0.1 - 0.2 %

All above concentrations are percent by volume.

May contain 0 - 100 ppmw hydrogen sulphide in liquid phase.

## SECTION 4. FIRST AID MEASURES

- If inhaled : Move to fresh air.  
Artificial respiration and/or oxygen may be necessary.  
Seek medical advice.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

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In case of eye contact	: Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice. : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	: Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	: Respiratory, skin and eye irritation; nausea; cancer. High concentration of vapours may induce unconsciousness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Symptoms of hydrogen sulphide overexposure include respiratory tract irritation and shortness of breath. Exposure to very high levels of hydrogen sulphide (> 500 ppm) will result in unconsciousness and death.
Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Carbon dioxide (CO <sub>2</sub> ) Foam Dry chemical
Unsuitable extinguishing media	: Do NOT use water jet.
Specific hazards during fire-fighting	: Cool closed containers exposed to fire with water spray.
Hazardous combustion products	: Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), hydrogen sulphide (H <sub>2</sub> S), hydrocarbons, smoke and irritating vapours as products of incomplete combustion.
Further information	: Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	: Wear self-contained breathing apparatus for firefighting if necessary.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: For personal protection see section 8. Evacuate personnel to safe areas. Material can create slippery conditions. Ensure adequate ventilation.
Environmental precautions	: If the product contaminates rivers and lakes or drains inform respective authorities.

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Methods and materials for containment and cleaning up : Prevent further leakage or spillage if safe to do so.  
Remove all sources of ignition.  
Soak up with inert absorbent material.  
Non-sparking tools should be used.  
Ensure adequate ventilation.  
Contact the proper local authorities.

### SECTION 7. HANDLING AND STORAGE

Advice on safe handling : For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
In case of insufficient ventilation, wear suitable respiratory equipment.  
Avoid contact with skin, eyes and clothing.  
Do not ingest.  
Keep away from heat and sources of ignition.  
Keep container closed when not in use.  
Hydrogen sulphide may accumulate in enclosed spaces.  
Open tank car hatches with caution.

Conditions for safe storage : Store in original container.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Keep in a dry, cool and well-ventilated place.  
Keep in properly labelled containers.  
To maintain product quality, do not store in heat or direct sunlight.  
Hydrogen sulphide may be released and collect in the vapor space of process vessels and storage tanks.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Bitumens	128683-24-9	TWA	2 mg/m <sup>3</sup> (Bitumen fume)	Suncor Energy
butane	106-97-8	TWA	1,000 ppm	CA AB OEL
		TWA	600 ppm	CA BC OEL
		STEL	750 ppm	CA BC OEL
		TWAEV	800 ppm 1,900 mg/m <sup>3</sup>	CA QC OEL
xylene	1330-20-7	STEL	1,000 ppm	ACGIH
		STEL	150 ppm 651 mg/m <sup>3</sup>	CA AB OEL
		TWA	100 ppm 434 mg/m <sup>3</sup>	CA AB OEL
		TWAEV	100 ppm 434 mg/m <sup>3</sup>	CA QC OEL
		STEV	150 ppm 651 mg/m <sup>3</sup>	CA QC OEL

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		TWA	100 ppm	CA BC OEL
		STEL	150 ppm	CA BC OEL
		TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
		TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
n-hexane	110-54-3	TWA	50 ppm 176 mg/m <sup>3</sup>	CA AB OEL
		TWA	20 ppm	CA BC OEL
		TWAEV	50 ppm 176 mg/m <sup>3</sup>	CA QC OEL
		TWA	50 ppm	ACGIH
benzene	71-43-2	TWA	0.5 ppm 1.6 mg/m <sup>3</sup>	CA AB OEL
		STEL	2.5 ppm 8 mg/m <sup>3</sup>	CA AB OEL
		TWA	0.5 ppm	CA BC OEL
		STEL	2.5 ppm	CA BC OEL
		TWA	0.5 ppm	CA ON OEL
		STEL	2.5 ppm	CA ON OEL
		TWAEV	1 ppm 3 mg/m <sup>3</sup>	CA QC OEL
		STEV	5 ppm 15.5 mg/m <sup>3</sup>	CA QC OEL
		TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
toluene	108-88-3	TWA	50 ppm 188 mg/m <sup>3</sup>	CA AB OEL
		TWA	20 ppm	CA BC OEL
		TWAEV	50 ppm 188 mg/m <sup>3</sup>	CA QC OEL
		TWA	20 ppm	ACGIH
1,3-butadiene	106-99-0	TWA	2 ppm 4.4 mg/m <sup>3</sup>	CA AB OEL
		TWA	2 ppm	CA BC OEL
		TWAEV	2 ppm 4.4 mg/m <sup>3</sup>	CA QC OEL
		TWA	2 ppm	ACGIH
hydrogen sulphide	7783-06-4	TWA	10 ppm 14 mg/m <sup>3</sup>	CA AB OEL
		Ceiling	15 ppm 21 mg/m <sup>3</sup>	CA AB OEL
		Ceiling	10 ppm	CA BC OEL
		TWA	10 ppm	CA ON OEL
		STEL	15 ppm	CA ON OEL
		TWAEV	10 ppm 14 mg/m <sup>3</sup>	CA QC OEL
		STEV	15 ppm 21 mg/m <sup>3</sup>	CA QC OEL
		TWA	1 ppm	ACGIH
		STEL	5 ppm	ACGIH

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### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI

**Engineering measures** : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.  
Use only in well-ventilated areas.

### Personal protective equipment

**Respiratory protection** : Concentration in air determines protection needed.  
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

If hydrogen sulphide is present full-face supplied air respirator with escape bottle or SCBA is required.

**Filter type** : Wear a NIOSH-approved respirator/breathing apparatus in situations where there may be potential for airborne exposure.

**Hand protection Material** : neoprene, nitrile. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

**Remarks** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Eye protection** : Wear face-shield and protective suit for abnormal processing problems.

**Skin and body protection** : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

**Protective measures** : Wash contaminated clothing before re-use.

**Hygiene measures** : Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Wash face, hands and any exposed skin thoroughly after

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handling.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: black
Odour	: Hydrocarbon or "rotten egg" if H <sub>2</sub> S present, but odour is an unreliable warning, since it may deaden the sense of smell.
Odour Threshold	: No data available
pH	: No data available
Melting point/range	: No data available
Initial boiling point and boiling range	: < -0.5 °C (< 31.1 °F) Method: ASTM D-2887
Decomposition temperature	No data available
Flash point	: < -35 °C (-31 °F)
Auto-Ignition Temperature	: No data available
Evaporation rate	: No data available
Flammability	: Easily ignites under almost all normal temperature conditions. Extremely flammable in presence of open flames, sparks, shocks, heat, oxidizing materials. Vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks), and may travel considerable distance to sources of ignition and flash back.
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: estimated 11.8 kPa Method: ASTM D 323A
Relative vapour density	: No data available
Relative density	: estimated 0.92 - 0.94
Density	: 0.938 kg/l
Solubility(ies)	
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: Pow: estimated < 1
Viscosity	
Viscosity, kinematic	: estimated 63.5 mm <sup>2</sup> /s (40 °C / 104 °F)



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estimated 268.5 mm<sup>2</sup>/s (15.5 °C / 59.9 °F)  
Method: ASTM D 445

### SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Extremes of temperature and direct sunlight.
Incompatible materials	: Reactive with oxidising agents.
Hazardous decomposition products	: May release CO <sub>x</sub> , NO <sub>x</sub> , SO <sub>x</sub> , H <sub>2</sub> S, smoke and irritating vapours when heated to decomposition.

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

Inhalation  
Eye contact  
Skin contact  
Ingestion

#### Acute toxicity

##### Product:

Acute oral toxicity	: Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	: Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	: Remarks: Based on available data, the classification criteria are not met.

##### Components:

###### **sulfur:**

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg,

###### **butane:**

Acute inhalation toxicity : LC50 (Rat): 658 mg/l  
Exposure time: 4 h  
Test atmosphere: gas

###### **xylene:**

Acute oral toxicity : LD50 (Rat): 4,300 mg/kg,  
Acute inhalation toxicity : LC50 (Rat): 5000 ppm  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 1,700 mg/kg,

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### **isobutane:**

Acute inhalation toxicity : LC50 (Rat): 658,000 mg/m<sup>3</sup>  
Exposure time: 4 h  
Test atmosphere: gas

### **n-hexane:**

Acute oral toxicity : LD50 (Rat): 15,840 mg/kg,  
Acute inhalation toxicity : LC50 (Rat): 48000 ppm  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Acute dermal toxicity : LD50 (Rabbit): > 3,295 mg/kg,

### **benzene:**

Acute oral toxicity : LD50 (Rat): 2,990 mg/kg,  
Acute inhalation toxicity : LC50 (Rat): 13700 ppm  
Exposure time: 4 h  
Test atmosphere: vapour  
Acute dermal toxicity : LD50 (Rabbit): > 8,240 mg/kg,

### **toluene:**

Acute oral toxicity : LD50 (Rat): 5,580 mg/kg,  
Acute inhalation toxicity : LC50 (Rat): 7585 ppm  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Acute dermal toxicity : LD50 (Rabbit): 12,125 mg/kg,

### **Skin corrosion/irritation**

#### **Product:**

Remarks: Causes skin irritation.

### **Serious eye damage/eye irritation**

#### **Product:**

Remarks: Based on available data, the classification criteria are not met.

### **Respiratory or skin sensitisation**

#### **Product:**

Remarks: Based on available data, the classification criteria are not met.

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### Germ cell mutagenicity

**Product:**

Germ cell mutagenicity-  
Assessment

May cause genetic defects.

### Carcinogenicity

**Product:**

Carcinogenicity - As-  
sessment

May cause cancer.

### Reproductive toxicity

**Product:**

Reproductive toxicity -  
Assessment

Suspected of damaging fertility or the unborn child.

### STOT - single exposure

**Product:**

Remarks: Based on available data, the classification criteria are not met.

### STOT - repeated exposure

**Product:**

Target Organs: Auditory system, Blood, Liver, thymus

Remarks: May cause damage to organs through prolonged or repeated exposure.

No data available

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Product:**

Toxicity to fish

:

Remarks: No data available

Toxicity to daphnia and other  
aquatic invertebrates

:

Remarks: No data available

Toxicity to algae

:

Remarks: No data available

Toxicity to bacteria

:

Remarks: No data available

**Components:**

**n-hexane :**

Toxicity to fish

:

LC50 (Fish): 4.12 mg/l  
Exposure time: 96 h

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 3.87 mg/l  
Exposure time: 48 h

### Persistence and degradability

#### Product:

Biodegradability : Remarks: No data available

### Bioaccumulative potential

No data available

### Mobility in soil

No data available

### Other adverse effects

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Offer surplus and non-recyclable solutions to a licensed disposal company.  
Waste must be classified and labelled prior to recycling or disposal.  
Send to a licensed waste management company.  
Dispose of as hazardous waste in compliance with local and national regulations.  
Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1267  
Proper shipping name : Petroleum crude oil  
Class : 3  
Packing group : I  
Labels : Class 3 - Flammable Liquid  
Packing instruction (cargo aircraft) : 361

#### IMDG-Code

UN number : UN 1267  
Proper shipping name : PETROLEUM CRUDE OIL  
Class : 3  
Packing group : I  
Labels : 3  
EmS Code : F-E, S-E  
Marine pollutant : no

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### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

#### National Regulations

##### TDG

UN number : UN 1267  
Proper shipping name : PETROLEUM CRUDE OIL  
Class : 3  
Packing group : I  
Labels : 3  
ERG Code : 128  
Marine pollutant : no

### SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

#### The components of this product are reported in the following inventories:

**DSL** At least one component is not listed on the DSL but all such components are listed on the NDSL.

### SECTION 16. OTHER INFORMATION

For Copy of SDS : Internet: [www.petro-canada.ca/msds](http://www.petro-canada.ca/msds)  
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228  
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.