

SAFETY DATA SHEET



SUNCOR OSA

V00000000948

Version 4.0

Revision Date 2019/07/08

Print Date 2019/12/11

SECTION 1. IDENTIFICATION

Product name : SUNCOR OSA

Synonyms : Sweet Crude Oil, Blended Synthetic Oil, ER66

Product code : 100014

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 | amber |
| Odour | Hydrocarbon or "rotten egg" if H ₂ S present, but odour is an unreliable warning, since it may deaden the sense of smell. |

GHS Classification

Flammable liquids : Category 1

Acute toxicity (Inhalation) : Category 4

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)

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Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Extremely flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Harmful if inhaled.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Blood, thymus, Liver) 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.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
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.

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Potential Health Effects

Primary Routes of Entry : Inhalation
Eye contact
Skin contact
Ingestion

Aggravated Medical Condition : None known.

Other hazards

None known.

IARC

Group 1: Carcinogenic to humans

1,3-Butadiene 106-99-0

ACGIH

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 |
|--|-------------|---------------|
| Gas oils (oil sand), hydrotreated | 128683-29-4 | 60 - 70 % |
| distillates (petroleum), hydrotreated middle | 64742-46-7 | 10 - 25 % |
| Naphtha (oil sand), hydrotreated | 128683-33-0 | 10 - 25 % |
| butane | 106-97-8 | 0 - 3 % |
| pentane | 109-66-0 | 1 - 2 % |
| isobutane | 75-28-5 | 1 - 2 % |
| n-hexane | 110-54-3 | 0.1 - < 1 % |
| xylene | 1330-20-7 | 0.1 - < 1 % |
| 1,3-butadiene | 106-99-0 | 0.1 - < 1 % |
| toluene | 108-88-3 | 0.1 - < 1 % |

All above concentrations are percent by volume.

May contain 0 - 50 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.
Wash skin thoroughly with soap and water or use recognized skin cleanser.

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| | |
|---|---|
| In case of eye contact | : 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. Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. 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. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration hazard if swallowed - can enter lungs and cause damage. |
| 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 | : Dry chemical Carbon dioxide (CO ₂) Foam |
| 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 ₂), nitrogen oxides (NO _x), sulphur oxides (SO _x), 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. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions. |
| 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.
Use only with adequate ventilation.
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 |
|------------|----------|----------------------------------|--|-----------|
| 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 ³ | CA QC OEL |
| | | STEL | 1,000 ppm | ACGIH |
| pentane | 109-66-0 | TWAEV | 120 ppm 350 mg/m ³ | CA QC OEL |
| | | TWA | 600 ppm 1,770 mg/m ³ | CA AB OEL |
| | | TWA | 600 ppm | CA BC OEL |
| | | TWA | 1,000 ppm | ACGIH |
| n-hexane | 110-54-3 | TWA | 50 ppm 176 mg/m ³ | CA AB OEL |
| | | TWA | 20 ppm | CA BC OEL |

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| | | | | |
|-------------------|-----------|---------|----------------------|-----------|
| | | TWAEV | 50 ppm 176 mg/m3 | CA QC OEL |
| | | TWA | 50 ppm | ACGIH |
| xylene | 1330-20-7 | STEL | 150 ppm 651 mg/m3 | CA AB OEL |
| | | TWA | 100 ppm 434 mg/m3 | CA AB OEL |
| | | TWAEV | 100 ppm 434 mg/m3 | CA QC OEL |
| | | STEV | 150 ppm 651 mg/m3 | CA QC OEL |
| | | 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 |
| 1,3-butadiene | 106-99-0 | TWA | 2 ppm 4.4 mg/m3 | CA AB OEL |
| | | TWA | 2 ppm | CA BC OEL |
| | | TWAEV | 2 ppm 4.4 mg/m3 | CA QC OEL |
| | | TWA | 2 ppm | ACGIH |
| toluene | 108-88-3 | TWA | 50 ppm 188 mg/m3 | CA AB OEL |
| | | TWA | 20 ppm | CA BC OEL |
| | | TWAEV | 50 ppm 188 mg/m3 | CA QC OEL |
| | | TWA | 20 ppm | ACGIH |
| hydrogen sulphide | 7783-06-4 | TWA | 10 ppm 14 mg/m3 | CA AB OEL |
| | | Ceiling | 15 ppm 21 mg/m3 | 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/m3 | CA QC OEL |
| | | STEV | 15 ppm 21 mg/m3 | CA QC OEL |
| | | TWA | 1 ppm | ACGIH |
| | | STEL | 5 ppm | ACGIH |

Biological occupational exposure limits

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | 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 | 0.03 mg/l | ACGIH BEI |

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| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | possible after ex- posure ceases) | | |
|--|--|--|--|--|--|--|

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, polyvinyl alcohol (PVA). 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 handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : amber

Odour : Hydrocarbon or "rotten egg" if H₂S present, but odour is an unreliable warning, since it may deaden the sense of smell.

Odour Threshold : No data available

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| | |
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| pH | : No data available |
| Melting point | : No data available |
| Boiling point/boiling range | : < -0.5 °C (< 31.1 °F) Method: ASTM D-2887 |
| Decomposition temperature | No data available |
| Flash point | : < -35 °C (-31 °F) Method: ASTM D 93 |
| Auto-Ignition Temperature | : 247 °C (477 °F) Method: ASTM E659 |
| 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 | : 0.41 %(V) Method: ASTM E681 |
| Vapour pressure | : No data available |
| Relative vapour density | : No data available |
| Relative density | : 0.86 - 0.87 |
| Density | : 0.86 - 0.87 g/cm3 |
| Solubility(ies) | |
| Water solubility | : insoluble |
| Partition coefficient: n-octanol/water | : Pow: < 1 |
| Viscosity | |
| Viscosity, kinematic | : 4.4 mm2/s (30 °C / 86 °F) 3.5 mm2/s (40 °C / 104 °F) 2.9 mm2/s (50 °C / 122 °F) Method: ASTM D 445 |

SECTION 10. STABILITY AND REACTIVITY

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| | |
|------------------------------------|---|
| 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 COx, hydrocarbons, 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: Harmful if inhaled.

Acute toxicity estimate: 12.54 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

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

Components:

butane:

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

pentane:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg,

Acute inhalation toxicity : LC50 (Rat): 364 mg/l
Exposure time: 4 h
Test atmosphere: vapour

isobutane:

Acute inhalation toxicity : LC50 (Rat): 658,000 mg/m3
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

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Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 3,295 mg/kg,

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,

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.

Germ cell mutagenicity

Product:

Germ cell mutagenicity-
Assessment : May cause genetic defects.

Carcinogenicity

Product:

Carcinogenicity - As-
sessment : May cause cancer.

Reproductive toxicity

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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: Blood, Liver, thymus

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

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

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

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

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

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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

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

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| | | |
|------------------|---|-----|
| 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 | All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt. |
|------------|---|

SECTION 16. OTHER INFORMATION

| | | |
|-----------------|---|---|
| For Copy of SDS | : | Internet: 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 |
|-------------|---|---------------------------------|

| | | |
|---------------|---|------------|
| Revision Date | : | 2019/07/08 |
|---------------|---|------------|

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.