



SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	FCC Light Cycle Oil
Other means of identification	Not available.
Synonyms	Petroleum distillates, light catalytic cracked
Recommended use	Fuel
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	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 1B
	Specific target organ toxicity, repeated exposure	Category 2
	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. May be fatal if swallowed and enters airways. Causes skin irritation. May cause cancer. May cause damage to organs through prolonged or repeated exposure.
Precautionary statement	
Prevention	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe the mist or vapor. 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 skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Specific treatment (see information on this label). IF EXPOSED OR CONCERNED: Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.
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.
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	%
Light cycle oil		64741-59-9	98
Sulfur		7704-34-9	1.6
Hydrogen sulfide		7783-06-4	0.1

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

Composition comments A complex combination of hydrocarbons produced by the distillation of products from the fluidized catalytic cracking (FCC) process with carbon numbers in the range of C9-C25.

4. First Aid Measures

Inhalation	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Skin contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. If skin irritation occurs: Get medical advice/attention. Specific treatment (see information on this label). Take off contaminated clothing and wash it before reuse.
Eye contact	Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.
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. Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse. Avoid contact with eyes and skin. Keep away from sources of ignition. No smoking. Keep out of reach of children.

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	Vapors may form explosive mixtures with air. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Container may explode in heat of fire.
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 carbon. Oxides of nitrogen. Oxides of sulfur. Aromatic hydrocarbons. Polycyclic aromatic hydrocarbons (PAHs).

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. 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

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. Stop leak if you can do so without risk. Use only non-sparking tools. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Never return spills to original containers for re-use. 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

Obtain special instructions before use.
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.
Take precautionary measures against static discharges.
Use non-sparking tools and explosion-proof equipment.

When handling, do not eat, drink or smoke.
Do not breathe mist or vapor.
Wear appropriate personal protective equipment.
Use only with adequate ventilation.
Avoid prolonged exposure.

Conditions for safe storage, including any incompatibilities

Store locked up.
Keep away from heat, sparks and open flame.
Store in a cool, dry place out of direct sunlight.
Store in a well-ventilated place.
Store away from incompatible materials (see Section 10 of the SDS).
Keep out of reach of children.

Shipping: Stable during transport. May be transported hot.

8. Exposure Controls/Personal Protection

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

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	21 mg/m ³
		15 ppm
	TWA	14 mg/m ³ 10 ppm
Light cycle oil (CAS 64741-59-9)	TWA	1590 mg/m ³ 400 ppm
	Sulfur (CAS 7704-34-9)	TWA

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

Components	Type	Value	Form
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	10 ppm	
Light cycle oil (CAS 64741-59-9)	TWA	0.2 mg/m ³	Mist.

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

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm
	TWA	1 ppm

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

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	STEL	15 ppm
	TWA	10 ppm

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

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	STEL	21 mg/m3
		15 ppm
	TWA	14 mg/m3
		10 ppm
Light cycle oil (CAS 64741-59-9)	TWA	1590 mg/m3
		400 ppm

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

Components	Type	Value
Light cycle oil (CAS 64741-59-9)	PEL	400 mg/m3
		100 ppm

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

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	20 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm
	TWA	1 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	15 mg/m3
		10 ppm
Light cycle oil (CAS 64741-59-9)	TWA	400 mg/m3
		100 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines See above

Appropriate engineering controls Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Face shield or chemical goggles.

Skin protection

Hand protection Nitrile rubber. Viton™. PVC. Tychem™ BR/LV.. Tychem™ TK.

Other Use of protective coveralls and long sleeves is recommended. If clothing or footwear becomes contaminated with the product, remove it and completely decontaminate it before re-use, or discard it.

Respiratory protection For confined spaces, wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. 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 Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When handling, do not eat, drink or smoke.

9. Physical and Chemical Properties

Appearance	Clear
Physical state	Liquid.
Form	Liquid
Color	Pale yellow
Odor	Mild petroleum
Odor threshold	Not available.

pH	Not applicable
Melting point/freezing point	Not available.
Initial boiling point and boiling range	340 - 730 °F (171.11 - 387.78 °C)
Pour point	Not available.
Specific gravity	0.9 - 1.0 @ 60°F
Partition coefficient (n-octanol/water)	Not available.
Flash point	140.0 - 240.0 °F (60.0 - 115.6 °C) Closed Cup
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	> 6 %
Flammability limit - upper (%)	< 13 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	> 1 (Heavier than air)
Relative density	Not available.
Solubility(ies)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
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 carbon. Oxides of nitrogen. Oxides of sulfur. Polycyclic aromatic hydrocarbons (PAHs). 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 damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Skin irritation. May cause redness and pain.
Information on toxicological effects	
Acute toxicity	May be fatal if swallowed and enters airways.

Components	Species	Test Results
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 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	
Light cycle oil (CAS 64741-59-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg > 2000 mg/kg, 24 Hours
	Rat	> 2 ml/kg
<i>Inhalation</i>		
LC50	Rat	> 2700 mg/m3, 4 Hours > 4.7 mg/l/4h > 3.2 mg/L, 4 Hours 3400 mg/l/4h
<i>Oral</i>		
LD50	Rat	> 2000 mg/kg > 25 ml/kg 3200 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

Components	Species	Test Results
	Rat	> 2200 mg/kg >= 3000 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary 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	Not classified.	
Carcinogenicity	See below.	
ACGIH Carcinogens		
Light cycle oil (CAS 64741-59-9)	A2 Suspected human carcinogen.	
Canada - Manitoba OELs: carcinogenicity		
MINERAL OIL, EXCLUDING METAL WORKING FLUIDS, POORLY AND MILDLY REFINED (CAS 64741-59-9)	Suspected human carcinogen.	
US NTP Report on Carcinogens: Known carcinogen		
Light cycle oil (CAS 64741-59-9)	Known To Be Human Carcinogen.	
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not listed.		
Reproductive toxicity	Not classified.	
Teratogenicity	Not classified.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure.	
Aspiration hazard	May be fatal if swallowed and enters airways.	
Chronic effects	Prolonged exposure may cause chronic effects. Prolonged or repeated exposure can cause kidney damage. Blood and nervous system disorders may occur after prolonged skin contact.	

12. Ecological Information

Components	Species	Test Results
Ecotoxicity	See below	
Ecotoxicological data		
Hydrogen sulfide (CAS 7783-06-4)		
Aquatic		
Fish	LC50	Bluegill (Lepomis macrochirus) 0.009 mg/L, 96 hours
Light cycle oil (CAS 64741-59-9)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia pulex) 2.7 - 5.1 mg/L, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss) 8.8 mg/L, 96 hours
		8.8 mg/L, 96 hours
Sulfur (CAS 7704-34-9)		
Aquatic		
Fish	LC50	Western mosquitofish (Gambusia affinis) > 10000 mg/L, 96 hours
Persistence and degradability	This product has not been tested.	

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

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 Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN1202
Proper shipping name	DIESEL FUEL
Hazard class	3
Packing group	III
Special provisions	88, 91, 150

TDG



15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR.

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

Light cycle oil (CAS 64741-59-9) 1 TONNES

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

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)

Hydrogen sulfide (CAS 7783-06-4) 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)

Not listed.

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)
Not regulated.

Other federal regulations

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

Not regulated.

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

Hydrogen sulfide (CAS 7783-06-4)

US state regulations See below

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

Hydrogen sulfide (CAS 7783-06-4) Listed.
Light cycle oil (CAS 64741-59-9) Listed.
Sulfur (CAS 7704-34-9) Listed.

US - Illinois Chemical Safety Act: Listed substance

Hydrogen sulfide (CAS 7783-06-4)

US - Louisiana Spill Reporting: Listed substance

Hydrogen sulfide (CAS 7783-06-4) Listed.

US - Minnesota Haz Subs: Listed substance

Hydrogen sulfide (CAS 7783-06-4) Listed.
Light cycle oil (CAS 64741-59-9) Listed.

US - New Jersey RTK - Substances: Listed substance

Hydrogen sulfide (CAS 7783-06-4)
Light cycle oil (CAS 64741-59-9)
Sulfur (CAS 7704-34-9)

US - North Carolina Toxic Air Pollutants: Listed substance

Hydrogen sulfide (CAS 7783-06-4)

US - Texas Effects Screening Levels: Listed substance

Hydrogen sulfide (CAS 7783-06-4) Listed.
Light cycle oil (CAS 64741-59-9) Listed.
Sulfur (CAS 7704-34-9) Listed.

US. Massachusetts RTK - Substance List

Hydrogen sulfide (CAS 7783-06-4)
Light cycle oil (CAS 64741-59-9)
Sulfur (CAS 7704-34-9)

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

Hydrogen sulfide (CAS 7783-06-4)

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

Hydrogen sulfide (CAS 7783-06-4)
Light cycle oil (CAS 64741-59-9)
Sulfur (CAS 7704-34-9)

US. Rhode Island RTK

Hydrogen sulfide (CAS 7783-06-4)
Light cycle oil (CAS 64741-59-9)
Sulfur (CAS 7704-34-9)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

Inventory status

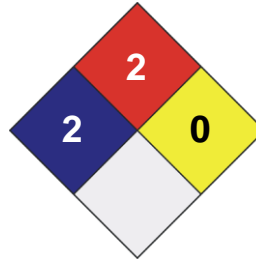
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*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

The information contained in this form is based on data from sources considered to be reliable but Irving Oil Refining G.P. does not guarantee the accuracy or completeness thereof. The information is provided as a service to the persons purchasing or using the material to which it refers and Irving Oil Refining G.P. expressly disclaims all liability for loss or damage including consequential loss or for injury to persons including death. The information shall not be reproduced, published or distributed in any manner without prior consent in writing of Irving Oil Refining G.P.

Issue date

11-October-2018

Version #

02

Effective date

16-February-2017

Prepared by

Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (SOR/2015-17) and the SDS contains all the information required by the HPR. For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.