DRILLING FLUID AND ADDITIVES

Dr-133 Polymer

Dr-133 is an advanced formula liquid polymer designed for a wide range of drilling applications. Maintains hole conditions in friable zones such as overburden, silts, sands, and clay. Superior lubricating qualities eliminate vibration while increasing core recovery.

WDS 120L

WDS 120L is a white, liquid anionic polymer which is easily mixed in fresh or brine water systems. When added to plain water it stabilizes swelling, provides drill string lubrication, reduces torque rod chatter and pump pressure. It is environmentally acceptable, non-toxic and doesn't ferment.

Calcium Chloride

Calcium Chloride ($CaCl_2$) is used to prepare brine solutions and to weight polymer muds. Keeps fluid from freezing. It is also a source of calcium for calcium chloride muds.

030219NWB2PER MSDS Sheets - ILA E

COMMERCIAL PROPANE (ODORIZED) IMPERIAL OIL
MATERIAL SAFETY DATA SHEET

COMMERCIAL PROPANE (ODORIZED)

Date Prepared: September 04, 1999

Supersedes: September 03, 1999

MSDS Number: 08515

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1. PRODUCT INFORMATION

Product Identifier: COMMERCIAL PROPANE (ODORIZED)

Application and Use:

Multi-purpose fuel or chemical feedstock.

Product Description:

Colourless gases composed mainly of C3 hydrocarbons stored and handled as liquids under pressure.

REGULATORY CLASSIFICATION

WHMIS:

Class A - Compressed Gas

Class B, Division 1: Flammable Gases.

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TDG INFORMATION (RAIL/ROAD):

Shipping Name: Liquefied petroleum gas (propane)

Class: 2.1

Packing Group: -

PIN Number: UN1075

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145

Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL

Products Division

111 St Clair Avenue West

Toronto, Ontario

M5W 1K3

(416) 968-4441

2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a) (i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #
Propane	90-99 V/V	74-98-6
Propylene	1-10 V/V	115-07-1
Ethane	0-5 V/V	74-84-0
Isobutane	0-2.5 V/V	75-28-5
Butanes	0-2.5 V/V	68513-65-5

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State:	Gas
Specific gravity:	not available
Viscosity:	0.50 cSt at 15 deg C
Vapour Density:	1.52
Boiling Point:	-42 deg C
Evaporation rate:	>1 (1= n-butylacetate)
Solubility in water:	negligible
Freezing/Pour Point:	not available
Odour Threshold:	not available
Vapour Pressure:	850 kPa at 15 deg C
Density:	0.51 g/cc at 15 deg C

Appearance/odour: Colourless gas, stenched to allow detection of leaks.

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4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

May cause central nervous system disorder (e.g. loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage.

Breathing high vapour concentrations (saturated vapours) for a few

minutes may be fatal. Saturated vapours can be encountered in confined spaces and/or under conditions of poor ventilation.

May cause irritation, breathing failure, coma and death without any warning odour being sensed.

Inhalation exposure to this product at extremely high concentrations, as in accidental releases in which concentrations reach or exceed the flammable range, may result in cardiac arrhythmias.

EYE CONTACT:

Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite (cold burns) and permanent eye damage.

SKIN CONTACT:

Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite (cold burn).

INGESTION:

Not considered to be a hazard.

ACUTE TOXICITY DATA:

The above evaluation of hazard is based on knowledge of the toxicity of the material's components.

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:

For Isobutane, 800 ppm.

For Propane, 1000 ppm TWA for 8 hours/day, and 1500 ppm for a 15 minute short term exposure (STEL).

For propylene, 1000 ppm 8-hour TWA and 3000 ppm 15-minute STEL.

ACGIH recommends:

For Butane, 800 ppm (1900 mg/m3).

Local regulated limits may vary.

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5. FIRST AID MEASURES

INHALATION:

In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificia

respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

In case of cold burns caused by rapidly expanding gas or vapourizing liquid, get prompt medical attention.

SKIN CONTACT:

In case of cold burns caused by rapidly expanding gas or vapourizing liquid, get prompt medical attention.

INGESTION:

First aid is not applicable.

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6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.

In open systems where contact is likely, wear gas-proof goggles, face shield chemical-resistant overalls, and appropriate thermal/chemical gloves. Where skin and eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear long sleeves, chemical resistant gloves, gas-proof goggles, and a face shield.

Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

Use explosion-proof ventilation equipment.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.

Store in a cool, well ventilated place away from incompatible materials. Store as pressurized liquid in a pressure vessel.

Store and load the container at normal (up to 38 deg C) temperature and at atmospheric pressure.

Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper relaxation and grounding procedures.

Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.

Vapours or dust may be harmful or fatal. Warn occupants of downwind areas.

Allow to evaporate.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Eliminate all sources of ignition. Vapours or dust may be harmful or fatal. Warn occupants and shipping in downwind areas.

Allow to evaporate from surface.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

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7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: -103 deg C COC ASTM D92

Autoignition: 432 deg C Flammable Limits: LEL: 2.4% UEL: 9.5%

GENERAL HAZARDS:

Extremely flammable; material will readily ignite at normal temperatures.
Flammable Gas; may readily form flammable mixtures at or above the flash point.

Toxic gases will form upon combustion.

Static Discharge; material may accumulate static charges which

may cause
a fire.

Auto-refrigeration; drains may become plugged and valves may become
inoperable because of the formation of ice due to expanding vapours or
vapourizing liquids.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire if possible to do so without hazard. If a leak or
spill has not ignited use water spray to disperse the vapours.

Do not extinguish flames at leak because possibility of uncontrolled
explosive re-ignition exists. Cut off fuel and/or allow fire to burn out.
Extinguish small residual fires with dry chemical powder or water spray.
Try to cover liquid spills with foam.

Respiratory and eye protection required for fire fighting personnel.
A self-contained breathing apparatus (SCBA) should be used for all indoor
fires and any significant outdoor fires. For small outdoor fires, which
may easily be extinguished with a portable fire extinguisher, use of an
SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide under thermal decomposition.

8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

none

9. NOTES

All components of this product are listed on the U.S. TSCA inventory.

Imperial Oil has no knowledge how its customers will handle, store,
transfer, distribute or use odourized propane or non-odourized

propane
and therefore makes no warranty regarding the propane or the od
ourant
after the custody of these materials passes to the customers. I
t is
recommended that Imperial Oil's customers provide their employe
es
and subsequent customers with information regarding the charact
eristics
of propane, how those characteristics relate to the employees o
r customers
use including the limitation in detecting non-odourized or odou
rized propane
and the limitations of any odourant such as ethyl mercaptan tha
t may be adde
during subsequent distribution.

With proper handling, transportation and storage, adding a chem
ical
odourant such as ethyl mercaptan has proven to be a very effect
ive warning
device but all odourants have certain limitations. The effectiv
eness of the
odourant may be diminished by a person's sense of smell, by com
peting
odours and by oxidation which may cause a potentially dangerous
situation.
Further safety related information is contained on the Material
Safety
Data Sheet.

Industry experience has shown that natural gas streams may cont
ain trace
amounts of radon, a naturally occurring radioactive gas, and ra
dioactive
particulate decay products which can accumulate in process equi
pment and
storage vessels. These materials emit gamma, alpha, and beta fo
rms of
radiation. Since gamma radiation can penetrate the walls of int
act equipment
a potential for exposure could exist at or adjacent to the exte
rnal surface
of process equipment that contain radon-enriched process stream
s or
accumulated deposits of radon decay products. Equipment emittin
g gamma
radiation at dose rates above background should be assumed to b

e contaminate
with internal deposits of alpha-and beta-emitting radon decay p
roducts.
Measures should be taken to preclude the inhalation or ingestio
n of alpha- o
beta-emitting materials. Before performing maintenance on conta
minated
equipment, all process shut-down safety and "gas freeing" proce
dures should
be followed and at least a 4 hour lapse should be allowed betwe
en process
stream shut-down and the opening of equipment for repair operat
ions. This
time will allow the gamma radiation dose rates to be reduced to
background
levels. Maintenance personnel should wear appropriate personal
protective
equipment and follow recommended industrial hygiene/safety and
environmental
procedures in accordance with prevailing regulations and indust
ry guidelines

TDG change.

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10. PREPARATION

Date Prepared: September 04, 1999

Prepared by: Lubricants & Specialties

IMPERIAL OIL

Products Division

111 St Clair Avenue West

Toronto, Ontario

M5W 1K3

(800) 268-3183

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MIDDLE DISTILLATEIMPERIAL OIL
MATERIAL SAFETY DATA SHEET

MIDDLE DISTILLATE

Date Prepared: March 10, 2000

Supersedes: March 09, 2000

MSDS Number: 00826

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1. PRODUCT INFORMATION

Product Identifier: MIDDLE DISTILLATE

ESSO MARINE GAS OIL (DYED OR CLEAR)

ESSO RAILROAD DIESEL (DYED OR CLEAR)

HEATING OIL (DYED OR CLEAR)

DIESEL (DYED OR CLEAR)

DIESEL QUALITY FURNACE FUEL (DYED OR CLEAR)

DIESEL QUALITY HEATING OIL (DYED OR CLEAR)

ESSO DIESEL (DYED OR CLEAR)

ESSO DIESEL QUALITY COMMERCIAL FUEL (DYED OR CLEAR)

ESSO DIESEL QUALITY FURNACE FUEL

ESSO DIESEL QUALITY HEATING OIL

ESSO FURNACE FUEL (DYED OR CLEAR)

ESSO HEATING OIL (DYED OR CLEAR)

ESSO MARINE DIESEL FUEL (DYED OR CLEAR)

ESSO RAILROAD DIESEL FUEL #3 (DYED OR CLEAR)

ESSO TOBACCO CURING OIL

FUEL OIL 75

FUEL OIL 76

DIESEL MARINE (DYED OR CLEAR)

DIESEL MARINE GAS OIL (DYED OR CLEAR)

FURNACE (DYED OR CLEAR)

DIESEL MARINE - POUR DEPRESSED (DYED OR CLEAR)

NO.2 FUEL OIL

NAVAL FUEL OIL 3-GP-11M (DYED)

ESSO DIESEL FUEL LS

DIESEL LOW SULFUR (DYED OR CLEAR)

NO.2 FUEL OIL FOR EXPORT

DIESEL FOR EXPORT (DYED OR CLEAR)

FURNACE TOBACCO CURING OIL

DIESEL NAVAL 3GP-11 (DYED OR CLEAR)

DIESEL NAVAL 3GP-15 (DYED OR CLEAR)

DIESEL LOW SULFUR RAIL (DYED OR CLEAR)

DIESEL LOW SULFUR DYED EP

DIESEL RAIL (DYED OR CLEAR)

DIESEL RAIL #3 (DYED OR CLEAR)

DIESEL RAIL #3 <HD> (DYED OR CLEAR)

DIESEL LOW SULFUR <032> (DYED OR CLEAR)

FURNACE URBAN (DYED OR CLEAR)

DIESEL (032) (DYED OR CLEAR)

DIESEL LOW SULFUR (EXP DYED)

FURNACE FUEL <032> DYED

DIESEL LOW SULFUR <EXPORT>

MARINE GAS OIL

MDO - MARINE DIESEL OIL 3 CST (CLEAR)

Application and Use:

Multi-purpose fuel

Product Description:

A complex mixture of aliphatic, olefinic, naphthenic and aromatic hydrocarbons.

REGULATORY CLASSIFICATION

WHMIS:

Class B, Division 3: Combustible Liquids.

Class D, Division 2, Subdivision B: Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic

Substances List (DSL) or are exempt.

TDG INFORMATION (RAIL/ROAD):

Shipping Name: FUEL OIL

Class: 3

Packing Group: III

PIN Number: UN1202

Please be aware that other regulations may apply.

TELEPHONE NUMBERS		MANUFACTURER/SUPPLIER:
Emergency 24 hr.	(519) 339-2145	IMPERIAL OIL
Technical Info.	(800) 268-3183	Products Division
		111 St Clair Avenue West
		Toronto, Ontario
		M5W 1K3
		(416) 968-4441

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2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a)
(i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #
Fuel Oil No.2	>99.9 V/V	68476-30-2

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid

Specific gravity: 0.820 to 0.900 at 15.5 deg C

Viscosity: 1.30 cSt at 40 deg C

to 11.00 cSt at 40 deg C

Vapour Density: 4

Boiling Point: 150 to 370 deg C

Evaporation rate: <1 (1= n-butylacetate)

Solubility in water: negligible

Freezing/Pour Point: -4 deg C -39 (RANGE)

Odour Threshold: not available

Vapour Pressure: 4 kPa at 38 deg C

Appearance/odour: White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).

High vapour concentrations are irritating to the eyes, nose, throat and lungs; may cause headaches and dizziness; may be anesthetic and may cause other central nervous system effects.

Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

Low toxicity.

Irritating.

INGESTION:

Low toxicity.

Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

CHRONIC:

Lifetime skin painting tests indicate that materials of similar composition have produced skin cancer in experimental animals. The relationship of these results to humans has not been fully established.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral	:	LD50 > 5000 mg/kg	(Rat)
Dermal	:	LD50 > 2000 mg/kg	(Rabbit)
Inhalation	:	LC50 > 2500 mg/m3	(Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:

100 ppm based on composition.

Local regulated limits may vary.

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5. FIRST AID MEASURES

INHALATION:

In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

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6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.

In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.

Where only incidental contact is likely, wear safety goggles, long sleeves, and chemical-resistant gloves.

Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.

Store in a cool, well ventilated place away from incompatible materials.

In keeping with good personal hygiene practices, wash hands thoroughly after handling the material.

Do not handle or store near an open flame, sources of heat, or sources of ignition.

Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper relaxation and grounding procedures.

Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.

Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.

Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in unconfined waters.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: >40 deg C PMCT ASTM D93

Autoignition: NA Flammable Limits: LEL: 0.7% UEL: 6.5%

GENERAL HAZARDS:

Combustible Liquid; may form combustible mixtures at or above the flash point.

Toxic gases will form upon combustion.

Static Discharge; material may accumulate static charges which may cause a fire.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire.

Use foam, dry chemical or water spray to extinguish fire.

Respiratory and eye protection required for fire fighting personnel.
Avoid spraying water directly into storage containers due to danger of boilover.

A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide and traces of oxides of sulphur

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8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

none

9. NOTES

All components of this product are listed on the U.S. TSCA inventory.

Three year WHMIS review.

This MSDS has been revised in Section 3.

10. PREPARATION

Date Prepared: March 10, 2000

Prepared by: Lubricants & Specialties
IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(800) 268-3183

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LIGHT DISTILLATEIMPERIAL OIL
MATERIAL SAFETY DATA SHEET

LIGHT DISTILLATE

Date Prepared: May 23, 2001

Supersedes: May 11, 2001

MSDS Number: 08529

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1. PRODUCT INFORMATION

Product Identifier: LIGHT DISTILLATE

ESSO STOVE OIL (DYED OR CLEAR)

DIESEL ARCTIC (DYED OR CLEAR)

ESSO DIESEL DEW (DYED OR CLEAR)

ESSO DIESEL ARCTIC (DYED OR CLEAR)

ESSO STOVE QUALITY COMMERCIAL FUEL

ESSO STOVE QUALITY FURNACE FUEL

ESSO STOVE QUALITY HEATING OIL (DYED OR CLEAR)

STOVE QUALITY FURNACE FUEL

DIESEL 60 (DYED OR CLEAR)

DIESEL DEW (DYED OR CLEAR)

ESSO DIESEL 60 (DYED OR CLEAR)

ESSO DIESEL LIGHT (DYED OR CLEAR)

STOVE OIL (DYED OR CLEAR)

STOVE QUALITY HEATING OIL (DYED OR CLEAR)

ESSO DIESEL FUEL OIL 50 (DYED OR CLEAR)

DIESEL LOW SULFUR LIGHT (DYED OR CLEAR)

LIGHT DISTILLATE (LOW SULFUR)

STOVE QUALITY COMMERCIAL FUEL

DIESEL FUEL OIL 50 (DYED OR CLEAR)

DIESEL LIGHT (DYED OR CLEAR)

DIESEL LOW SULFUR LIGHT DYED EP

FURNACE LIGHT (DYED OR CLEAR)

Application and Use:

Multi-purpose fuel

Product Description:

A complex mixture of aliphatic, olefinic, naphthenic and aromatic hydrocarbons, and additives.

REGULATORY CLASSIFICATION

WHMIS:

Class B, Division 3: Combustible Liquids.

Class D, Division 2, Subdivision B: Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TDG INFORMATION (RAIL/ROAD):

Shipping Name: FUEL OIL

Class: 3

Packing Group: III

PIN Number: UN1202

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145

Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL

Products Division

111 St Clair Avenue West

Toronto, Ontario

M5W 1K3

(416) 968-4441

---

2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a) (i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #
Kerosene, straight run	0-100 V/V	8008-20-6 LD50:>5g/kg,oral,rat
Light Atmospheric Gas Oil	0-100 V/V	64741-44-2
Light Hydrocracked Distillate	0-100 V/V	64741-77-1

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid

Specific gravity: not available

Viscosity: 1.70 cSt at 40 deg C

Vapour Density: not available

Boiling Point: 180 to 320 deg C

Evaporation rate: <1 (1= n-butylacetate)

Solubility in water: negligible

Freezing/Pour Point: -39 deg C ASTM D97

Odour Threshold: not available

Vapour Pressure: <1 kPa at 38 deg C

Density: 0.85 g/cc at 15 deg C

Appearance/odour: White or pale yellow liquid, petroleum odour

---

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).

High vapour concentrations are irritating to the eyes, nose, th
roat and
lungs; may cause headaches and dizziness; may be anesthetic and
may cause
other central nervous system effects.

Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

Low toxicity.

Irritating.

INGESTION:

Low toxicity.

Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

CHRONIC:

Lifetime skin painting tests indicate that materials of similar composition have produced skin cancer in experimental animals. The relationship of these results to humans has not been fully established.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral	:	LD50 > 5000 mg/kg (Rat)
Dermal	:	LD50 > 2000 mg/kg (Rabbit)
Inhalation	:	LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:

100 ppm based on composition.

Local regulated limits may vary.

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5. FIRST AID MEASURES

INHALATION:

In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

Flush eyes with large amounts of water until irritation subside

s. If
irritation persists, get medical attention.

SKIN CONTACT:

Immediately flush with large amounts of water. Use soap if ava
ilable.
Remove contaminated clothing, including shoes, after flushing h
as begun.
If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of
the
material should enter the lungs (aspiration). Keep at rest. G
et
. prompt medical attention.

---

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, dependin
g upon
conditions of use.

In open systems where contact is likely, wear safety goggles, c
hemical-

resistant overalls, and chemically impervious gloves.

Where only incidental contact is likely, wear safety goggles, long sleeves, and chemical-resistant gloves.

Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.

Store in a cool, well ventilated place away from incompatible materials. In keeping with good personal hygiene practices, wash hands thoroughly after handling the material.

Do not handle or store near an open flame, sources of heat, or sources of ignition.

Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper relaxation and

grounding procedures.

Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.

Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.

Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable

dispersants may be used in unconfined waters.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

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7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: 40 deg C PMCC ASTM D93

Autoignition: NA Flammable Limits: LEL: NA UEL: NA

GENERAL HAZARDS:

Combustible Liquid; may form combustible mixtures at or above the flash point.

Toxic gases will form upon combustion.

Static Discharge; material may accumulate static charges which may cause a fire.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire.

Use foam, dry chemical or water spray to extinguish fire.

Respiratory and eye protection required for fire fighting personnel.
Avoid spraying water directly into storage containers due to danger of boilover.

A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide, oxides of sulphur.

In addition, small amounts of nitrogen oxides will be formed.

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8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents. Use product with caution around heat, sparks, pilo
lights, static electricity and open flames.

HAZARDOUS DECOMPOSITION:

none

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9. NOTES

All components of this product are listed on the U.S. TSCA inve
ntory.

CHANGE TO US MSDS ONLY.

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10. PREPARATION

Date Prepared: May 23, 2001

Prepared by: Lubricants & Specialties

IMPERIAL OIL

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