WHMIS/US OSHA Material Safety Data Sheet for:

PWC 150 Frac Fluid

Section 1: MANUFACTURER/PREPARER INFORMATION & HAZARD WARNINGS

Poco Petroleums Ltd. 3500, 250 - 6th Avenue SW Calgary, AB T2P 3H7	EMERGENCY PHONE **(403) 260-8000**	INFORMATION PHONE (403) 260-3000
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WHMIS HAZARD SYMBOLS & DEFINITIONS

Class B: Combustible & flammable material

Class D-2: Poisonous & infectious material: other toxic effects

Section 2: HEALTH HAZARD DATA

ROUTES OF ENTRY/SIGNS & SYMPTOMS OF ACUTE EXPOSURE:

EYES: Irritation to eyes after prolonged or repeated exposure. **SKIN:** Prolonged or repeated liquid contact with skin will dry and defeat skin, leading to irritation, dermatitis. Can be absorbed through the skin. **INHALATION:** Inhalatior of high vapour concentrations may have results ranging from eye and respiratory irritation, dizziness, and headaches to unconsciousness, depending on concentrations and and length of exposure. Overexposure may cause CNS depressions. **INGESTION:** If ingested, DO NOT INDUCE VOMITING.

Chronic Effects: See acute effects above. Prolonged or repeated liquid contact with skin will lead to an increased possibility of skin cancer. Light hydrocarbons may contain low percentages of benzene. Benzene may cause leukaemia and other blood diseases after prolonged or repeated exposures at high concentrations. **Carcinogens:** Benzene is listed as a carcinogen by IARC, NTP, and OSHA. **Medical Conditions Aggravated by Exposure:** Any conditions causing impaired function of respiratory, cardiovascular, or nervous systems.

EMERGENCY & FIRST AID PROCEDURES:

EYES: Flush with lukewarm water for at least 20 minutes and continue until medical care is received. **SKIN:** Wash with soap and water. Remove severely contaminated clothing. **INHALATION:** Use proper respiratory protection to immediately remove affected victim from exposure. Administer artificial respiration or CPR as necessary. Keep at rest. Call for medical attention. **INGESTION:** DO NOT INDUCE VOMITING. If conscious, give 1 -2 glasses of water or milk to drink (never give anything by mouth to an unconscious or convulsing person). **NOTES TO PHYSICIAN:** High aspiration risk. For large amounts, careful gastric lavage. Eructation and gastro-enteritis may be a complication. Aspiration may cause chemical pneumonitis or lipoid pneumonia.

Section 3: PREVENTATIVE MEASURES

Respiratory Protection: Use supplied air, or self-contained breathing apparatus in confined or enclosed spaces.

Ventilation: Provide local exhaust ventilation where possible to capture vapours at source to minimise worker exposure and avoid accumulation of explosive vapours.

Gloves: Use chemical resistant gloves to avoid skin contact. **Eye Protection:** Chemical splash goggles or face shield where spray/mists or splashing is possible. **Other Protective Measures:** Use chemical resistant apron or fire retardant clothing as required by clothing policy.

Work/Hygienic Practices: Wash thoroughly with soap and water after contact. Wash before eating or drinking. Soiled clothing should be removed and laundered. Do not inhale vapour. Avoid contact with skin.

Handling and Storing: Keep containers closed when not in use. Ventilation must be sufficient to prevent build up of toxic concentration of vapour in air. Use explosion proof equipment and non-sparking tools in areas where explosive vapours may form. No smoking or open lights. Observe precautions for volatile, flammable vapours from absorbed material. Toxic or explosive quantities of gaseous vapours may be present in storage tanks and bulk transport vessels which contain or have contained crude petroleum. Do not attempt to rescue without wearing self-contained breathing equipment. Where possible, store away from direct sunlight in a cool area away from all ignition sources. Prevent from freezing. Storage systems must be bonded/grounded.

KEEP OUT OF THE REACH OF CHILDREN AND ANIMALS.

N/A=Not Applicable. N/E=Not Evaluated/Established. N/R=Not Reported by Manufacturer.

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Section 4: HAZARDOUS COMPONENTS & EXPOSURE LIMITS

Hazardous Component Name	CAS #	OSHA PEL	ACGIH-TLV	Other Limit	% Wt
Hexanes	110-54-03	N/R	50 ppm	N/R	00-01
Heptanes	142-82-05	N/R	400 ppm	500 ppm STEL	05-10
Octanes	111-65-09	N/R	300 ppm	375 ppm STEL	10-20
Nonanes	111-84-02	N/R	200 ppm	N/R	07-13
§ Benzene	71-43-02	N/R	0.5 ppm(proposed)	N/R	00-0.5
§† Toluene	108-88-03	N/R	50 ppm	N/R	04-08
§ Xylene	1330-20-7	N/R	100 ppm	150 ppm STEL	05-10
1,2,4 Trimethyl Benzene	95-63-06	N/R	25 ppm	N/R	01-02
Cyclohexane	110-82-07	N/R	300 ppm	N/R	0.1-1.0
Methyl Cyclohexane	108-87-02	N/R	400 ppm	N/R	05-10
Methyl Cyclopentane	96-37-07	N/R	600 ppm	N/R	00-0.5

§ indicates a toxic chemical subject to the reporting requirements of SARA Title III, Section 313.
† indicates a chemical known to the State of California to cause cancer, birth defects or other reproductive harm per Proposition 65.

Section 5: PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 100-310°
Specific Gravity: 0.780 @ 15°C (Water=1)
Vapor Pressure: 53 mm Hg @ 20°C
Percent Volatile: 100% by vol.
Vapor Density (Air=1): 3.5 @ 20°
Evaporation Rate: N/E
Solubility in Water: N/E
pH: N/A
Appearance/Odor: Amber liquid/Pleasant hydrocarbon odour.

Section 6: FIRE & EXPLOSION HAZARD DATA

Flash Point (Method): 30°C (OC) FLAMMABLE **Flammable Limits. LEL:** .05% **UEL:** 7.8%

Extinguishing Media: Dry chemical, foam, CO2, using manufacturers recommendations technique. Water may be ineffective, but should be used to keep fire exposed containers cool.

Special Firefighting Procedures: Use foam, CO2 on chemical fire extinguishing agents. If a leak or spill has not ignited, use water spray to disperse vapours and to protect personnel attempting to stop leak. Water spray may be used to flush spills from exposure. Use self-contained breathing equipment.

Unusual Fire and Explosion Hazards: Static spark may cause ignition. Highly flammable products of combustion may contain CO, CO2, and other corrosive toxic materials. Flammable liquid-vapour may ignite explosively. Do not enter enclosed or confined spaces without proper protective equipment including self-contained breathing apparatus.

Section 7: REACTIVITY DATA

Stability: Stable. **Hazardous Polymerization:** Will not occur. **Conditions to Avoid:** Oxidisers, heat, sparks, flames, static charge build-up. **Incompatibility:** Strong oxidants such as liquid chlorine, concentrated oxygen, sodium or calcium hypochlorite. **Hazardous Decomposition Products:** Burning may result in smoke, CO and CO2.

Section 8: SPILLS, DISPOSAL & ADDITIONAL INFORMATION

Spill/Leak Procedures: Test area for toxic or explosive gases. Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent (sand, earth, sawdust, etc.) to spill area. Minimise breathing vapour. Ventilate confined areas. Open windows and floors. Keep petroleum products away from sewers, watercourses by dyking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Federal, Provincial regulations must be followed. Handling procedures and equipment electronically bond/ground for all transfers.

Waste Disposal: Recycle as much of the recoverable product as possible. Dispose of absorbed materials at an approved disposal site or facility. Assure conformity with applicable disposal regulations.

Additional Information: N/R

Gibson Clear Frac Fluid MSDS

Material Safety Data Sheet

1. Product and Company Identification

Product Name:	Gibson Clear Frac Fluid
Synonym:	Petroleum Hydrocarbon
Product use:	Chemical feedstock, flotation and spray oils, oil field drilling fluids and other industrial applications.
Supplier:	Moose Jaw Refinery
Address:	641 Manitoba Street East Moose Jaw, SK, S6H 6E3
Emergency Contact:	403-206-4000
Canutec:	(613) 996-6666 or Cellular *666

2. Hazards Identification

EMERGENCY OVERVIEW

Combustible hydrocarbon liquid. Product will float on water. Keep away from heat, sparks and flame. Avoid breathing vapour – harmful if inhaled. Avoid contact with eyes, skin and clothing. Vapours are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapours may spread along the ground and may enter sewers, basements and other confined spaces. Spilled material will be slippery and may cause falls.

POTENTIAL HEALTH EFFECTS / ROUTES OF EXPOSURE

Eye Contact: May cause eye irritation.

Skin Contact: May cause irritation and repeated or prolonged contact may defat the skin leading to dermatitis. Prolonged skin contact with petroleum products is associated with skin cancer.

Ingestion: Ingestion may lead to vomiting and diarrhea. Vomiting may cause aspiration of liquid into the lungs and may result in chemical pneumonia, severe lung damage and respiratory failure.

Inhalation: Inhalation of vapours may cause headaches, loss of appetite and drowsiness. Inhalation of vapours may also affect the Central Nervous System, liver and kidneys.

3. Composition/Information on Ingredients

Ingredient Name	%	CAS No.
Kerosene	100	8008-20-6
Octane	1-3	111-65-9
Nonane	1-5	111-84-2
Decane	10-20	124-18-5
Unidecane	15-30	1120-21-4
Dodecane	15-30	112-40-3
Tridecane	7-15	629-50-5

Gas oil is defined as Petroleum distillates, straight middle run. The listed components are provided as guidance based on the available knowledge of the commingled stream.

4. First Aid Measures

Eyes: In case of contact with eyes, immediately flush with water for at least 15 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention.

Skin: Remove contaminated clothing and wash contaminated areas thoroughly with soap and water (use waterless hand cleaner if water is not available). Obtain medical attention if irritation or redness develops.

Ingestion: DO NOT induce vomiting as aspiration of fluid into lungs may cause chemical pneumonia, severe lung damage and respiratory failure. Obtain immediate medical attention.

Inhalation: Ensure your own safety and use the appropriate respiratory protection to immediately remove the victim to an area free of contamination. Give CPR or artificial respiration as needed and give oxygen if breathing is difficult. Keep victim at rest and get immediate medical attention.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES
Combustible liquid.

HAZARDOUS COMBUSTION PRODUCTS:
This product burns with very smoky flame. Combustion produces carbon monoxide, carbon dioxide and irritating products associated with incomplete combustion.

FIRE AND EXPLOSION HAZARDS
Product vapours are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and enter sewers, basements and other confined spaces.

EXTINGUISHING MEDIA
Small Fires: Dry chemical, CO2, or foam.
Large Fires: Water spray, fog or foam can be used according to the manufacturer's recommended application techniques. Move containers from fire area if without risk.

FIRE FIGHTING INSTRUCTIONS
Small fires in the early stages may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. When fighting fires may result in potential exposure to high heat, smoke or toxic byproducts of combustion, an approved self-contained breathing apparatus (SCBA) with full-face piece and full turnout gear must be worn. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with large quantities of water.

UNUSUAL FIRE & EXPLOSION HAZARDS
Product floats on water and is capable of creating a fire hazard along path of runoff.

6. Accidental Release Measures

ACTIVATE SITE SPECIFIC EMERGENCY RESPONSE PLAN, IF AVAILABLE.
This product may be ignited by heat, sparks or flames. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Vapours may form explosive mixtures with air. Keep unauthorized personnel away. Stay upwind and keep out of low-lying areas. Ventilate closed spaces before entering. Do not touch or walk through spilled material. Stop leak if possible without risk. Prevent the product from entering waterways, sewers, basements or confined areas. A vapour suppressing foam may be used to reduce vapours. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use non-sparking tools to collect absorbed material.

Small Spills: Keep unauthorized personnel away. Stay upwind and keep out of low-lying areas. Ventilate closed spaces before entering. Spilled material is slippery and may cause falls.

Large Spills: Isolate and contain spill for clean-up and disposal. Keep unauthorized personnel away. Stay upwind and keep out of low-lying areas. Ventilate closed spaces before entering. Spilled material is slippery and may cause falls.

7. Handling and Storage

HANDLING PRECAUTIONS
Handle as a Combustible liquid. Keep away from heat, sparks, and open flame. No smoking or open flame in storage, use or handling areas. Keep containers closed and clearly labeled. Ground all drums and transfer vessels when handling. Empty product containers or vessels may contain explosive vapours. Do not cut, heat, weld or expose product to sources of ignition. Use only with adequate ventilation. Avoid breathing vapours. Wash thoroughly after handling.

STORAGE PRECAUTIONS
Store in a well ventilated area. This storage area should comply with NFPA 30. Avoid storage near incompatible materials.

WORK/HYGIENIC PRACTICES
Use good personal hygiene practices. DO NOT siphon by mouth. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Waterless hand cleansers may be used if water is not readily available. Promptly remove contaminated clothing and launder before reuse. Discard contaminated leather shoes and gloves.

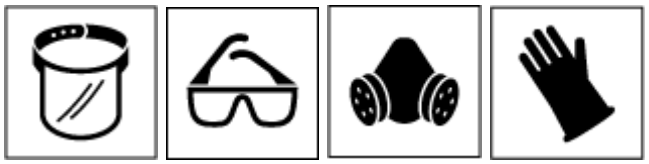
8. Exposure Controls / Personal Protection

Engineering Controls

Emergency eye wash station should be available in the vicinity of any potential splash exposure. Electrical equipment should be approved for classified area. Ensure adequate explosion proof lighting and local exhaust ventilation to keep vapour and mist

concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

PERSONAL PROTECTIVE EQUIPMENT



Eye/Face Protection: Safety glasses with side shields are required or use a face shield or chemical splash goggles if there is an elevated possibility of splashing or spraying.

Skin Protection: Avoid skin contact and wear gloves constructed of nitrile, neoprene, or PVC. Fire retardant coveralls are required and chemical protective clothing such as of poly-coated or an equivalent may be recommended based on the degree of exposure. **Note:** The resistance of specific materials may vary from product to product as well as degree of exposure. If the product is sensed inside the glove, the glove could be damaged or the glove material is incorrect for this product.

Respiratory Protection: Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are unknown, or any other circumstance exist where an air-purifying respirator may not provide adequate protection. When assessing the proper type of respiratory protection, also consider the occupational exposure limits applicable to individual ingredients. Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

A NIOSH/MSHA approved air-purifying respirator with organic vapour cartridges may be acceptable if airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Product odour or taste sensed inside the respirator indicates the respirator is not functioning properly.

Exposure Limits

Ingredient Name	CAS No.	Exposure Limits
Kerosene	8008-20-6	ACGIH TLV-TWA =200 mg/m3
Octane	111-65-9	ACGIH TLV-TWA =300 ppm
Nonane	111-84-2	ACGIH TLV-TWA =200 ppm

9. Physical and Chemical Properties

Appearance and state:	Clear colourless oily liquid
Odour:	Hydrocarbon
Odour Threshold:	Not Available
Flash Point:	43 °C (109.4 °F)
Auto Ignition:	Not Available
Lower Explosive Limit (%):	0.7
Upper Explosive Limit (%):	5
Boiling Point:	150-260 °C (302-500 °F)
Melting Point:	Not available
Reid Vapour Pressure:	<0.1 kPa
Vapour Density (Air = 1):	Not determined, expected to be heavier than air
Density:	0.816 (water - 1.0) at 15 °C

Solubility (H_2O):	Insoluble
Percent Volatiles:	Not Applicable
Viscosity:	Max 2.5 cSt @ 40 ^oC
Partition coefficient:	>1

10. Stability and Reactivity

STABILITY
Stable

CONDITIONS TO AVOID (STABILITY)
Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers and sources of heat or ignition.

HAZARDOUS DECOMPOSITION PRODUCTS
Irritating or toxic substances may be emitted upon decomposition. Decomposition products include carbon dioxide, carbon monoxide and sulphur dioxide.

HAZARDOUS POLYMERIZATION
Will Not Occur.

11. Toxicological Information

Ingredient Name	CAS No.	LD50	LC50
Kerosene	8008-20-6	>5000 mg/kg (Oral, Rat)	>5000 mg/ m3 (Inhal, Rat 4 Hr)
Octane	111-65-9	Not available	Rat inhal 118 g/m^3/4hr
Nonane	111-84-2	Not available	Not available
Undecane	1120-21-4	Mouse iv 517 mg/kg	Not available
Dodecane	112-40-3	Not available	Not available
Tridecane	629-50-5	Mouse iv 1161 mg/kg	Not available
Hexadecane	544-76-3	Not available	Not available

POTENTIAL HEALTH EFFECTS

Acute: This product may cause irritation to the eyes and skin. Inhalation may cause headaches, loss of appetite, drowsiness and may also affect the Central Nervous System, liver and kidneys. Ingestion may cause vomiting and diarrhea as well as aspiration of liquid into the lungs resulting in severe lung damage.

Chronic: Prolonged or repeated exposure to the skin can defat the skin and lead to dermatitis. Inhalation may cause headaches, loss of appetite, drowsiness, visual impairment and may also affect the Central Nervous System, liver and kidneys.

Sensitization: Not available.

Mutagenicity: Not available

Reproductive effects: Not available

Carcinogenicity: ACGIH has listed kerosene as A3 – confirmed animal carcinogen with unknown relevance to humans. The effect is believed to have been caused by continuous irritation to the skin from repeated and prolonged application to the skin of laboratory animals. The International Agency for Research on Cancer considers Kerosene not classifiable Kerosene as not classifiable to its carcinogenicity in humans.

12. Ecological Information

If released into soil, it will absorb and may biodegrade in anaerobic conditions. Photo-oxidation products include phenol, nitrophenols, nitrobenzene, formic acid and peroxyacetyl nitrate. Runoff from fire control or dilution water may cause pollution.

13. Disposal Information

Preferred waste management priorities are recycle, reprocess or incineration with heat recovery. Ensure disposal or reprocessing is in compliance with government regulations and local disposal regulations.

14. Transport Information

Shipping Name:	Kerosene
Primary TDG	3
Secondary TDG	None
P.I.N.	UN1223
Packing Group	III
NAERG Guide Number	128

15. Regulatory Information

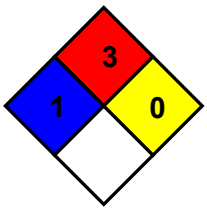
WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.

Class B3 – Combustible Liquid
Class D2A – Materials Causing Serious and Other Toxic Effects

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are listed on the Canadian DSL Inventory.

NFPA (National Fire Protection Association)



16. Other Information

Prepared for:	Gibson Energy: Health and Safety
Information contact:	403.206.4000
Prepared by:	Deerfoot Consulting Inc.

Disclaimer of Expressed and Implied Warranties

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