

## SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	<b>TriKill W</b>	<b>Code</b>	1434
<b>Supplier</b>	Trican Well Service Ltd. 2900, 645 – 7 <sup>th</sup> Ave S.W. Calgary, Alberta, T2P 4G8 For Product Information/MSDS Call: 403-266-0202 or 403-723-3688 (8:00 AM – 5:00 PM MST, Monday – Friday)	<b>Revision Date</b>	November 4, 2010
<b>Product Uses</b>	Well Kill Fluid	<b>Supersedes Date</b>	October 12, 2007
<b>24 Hour Emergency Numbers</b>	CANUTEC 613-996-6666 (Canada 24 hours)	<b>Original Creation</b>	November 17, 2005

## SECTION 2. HAZARDS IDENTIFICATION

WHMIS (Pictograms)



Workplace Hazardous Material Information System Classification

**B3** Combustible Liquid  
**D2A** Very Toxic material causing other toxic effects  
**D2B** Toxic material causing other toxic effects

**Hazard Summary**

**WARNING! COMBUSTIBLE LIQUID AND VAPOUR. TOXIC OFF-GASES. IRRITANT. CANCER HAZARD. ASPIRATION HAZARD.**

Avoid excessive heat, open flames, sparks and ignition sources. Liquid can release vapors that readily form flammable mixtures at or above the flashpoint. Vapour accumulation could flash and/or explode if ignited. Product can accumulate static charge which may cause an ignition.

Contact with hot material can cause thermal burns which may result in permanent damage.

Hydrogen sulfide, a highly toxic gas, is expected to be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odour does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Liquid will release hydrogen sulfide gas which will collect in the headspace above the liquid product. Avoid inhalation of gases or vapours when opening containers or tanks containing this material.

May be irritating to the eyes, nose, throat, and lungs.

Inhalation of high concentrations of vapours may cause headache, dizziness, nausea, loss of consciousness, and in cases of extreme exposure, possibly death.

Irritating to skin. May cause cancer.

High-pressure injection under the skin may cause serious damage.

This is a low viscosity material - if swallowed, it may be aspirated and can cause serious or fatal lung damage.

**Routes of Exposure**

Eyes, skin, inhalation and ingestion.

**Potential Acute Health Effects**

**Eyes Contact**

Eye contact with product or product vapours or mists may result in eye irritation. Hot liquid product may cause serious thermal burns on direct contact.

**Skin Contact/Absorption**

Prolonged skin contact may cause defatting of the skin resulting in dry cracked skin and dermatitis. Hot liquid product may cause serious thermal burns on

	direct contact.
<b>Inhalation</b>	May cause irritation of the respiratory tract and can cause central nervous system depression with symptoms of nausea, headache, vomiting, dizziness, fatigue, light headiness, reduced coordination, unconsciousness and possibly death. This product may contain trace quantities of hydrogen sulphide (H <sub>2</sub> S) gas which will collect in confined spaces. Acute effects vary with concentration of H <sub>2</sub> S ranging from mild eye, nose and throat irritation below 100 ppm to sudden unconsciousness, pulmonary edema or death at levels above 500 ppm. Odour is not reliable as a warning of potential exposure due to olfactory fatigue (overwhelming the sense of smell).
<b>Ingestion</b>	Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.
<b>Medical Conditions Aggravated by Exposure</b>	Skin contact may aggravate an existing dermatitis.
<i>See also Toxicological Information (Section 11)</i>	
<b>Additional Remarks</b>	None

### SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Name	CAS #	% (wt)
Heavy Fuel Oil	Various*	60-100
* CAS numbers 64741-62-4, 68915-96-8, 64741-44-2, 64741-59-9, and/or 68476-33-5		
Kerosene	8008-20-6	10-30
Naphthalene	91-20-3	<0.2

### SECTION 4. FIRST AID MEASURES

<b>Eye Contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek medical attention immediately after flushing.
<b>Skin Contact</b>	Remove contaminated clothing. Dry wipe exposed skin and cleanse with a waterless hand cleaner and follow by washing thoroughly with soap and water. Seek medical attention if irritation develops. Launder clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the person should be evaluated immediately by a physician as a surgical emergency. Even with seemingly minor injections, early surgical treatment with in the first few hours may significantly reduce the ultimate extent of injury. For hot product, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.
<b>Inhalation</b>	Protect rescuer. Remove person to fresh air. If not breathing, provide artificial respiration. If breathing is difficult or symptoms develop, seek prompt medical attention.
<b>Ingestion</b>	Do NOT induce vomiting unless directed to do so by medical personnel. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of material into lungs. Never give anything by mouth to an unconscious person. Seek medical attention immediately.
<b>Notes to Physician</b>	Keep person under observation. Effects may be delayed.
<b>Additional Remarks</b>	None

### SECTION 5. FIRE FIGHTING MEASURES

<b>Conditions of Flammability</b>	Combustible liquid. When heated above the flashpoint, releases flammable vapours. When mixed with air and exposed to ignition source, vapours can burn in open or explode if confined. Vapours may be heavier than air. May travel long distances along the ground before ignition and flashing back to vapour source. Vapours may collect in low or confined areas creating fire or explosion hazard. Heat may build enough pressure to rupture closed containers, spreading fire and increasing risk of injuries. Burning liquid may float on water.
<b>Extinguishing Media</b>	Use foam, CO <sub>2</sub> , dry chemical or water fog. Do not use solid water stream as it may scatter material and spread the fire. Water spray may be used to cool containers exposed to fire conditions.
<b>Protection of Firefighters</b>	As in any fire, wear full fire fighting gear including NIOSH-approved positive pressure self-contained breathing apparatus.

<b>Hazardous Combustion Products</b>	Carbon monoxide, carbon dioxide, oxides of sulfur, oxides of nitrogen and other toxic vapours, including hydrogen sulfide and aldehydes.
<b>Sensitivity to Mechanical Impact</b>	Not expected
<b>Sensitivity to Static Discharge</b>	This product may be sensitive to static discharge. Bond and ground all containers before transferring material.
<b>Additional Remarks</b>	None

## SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Eliminate all ignition sources. Isolate hazard area and restrict access. Try to work upwind of spill. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). Shut off leak only if it can be done safely.
<b>Environmental Precautions</b>	Prevent substance from entering natural bodies of water and sewer systems. Spilled product may pose a risk to the aquatic ecosystem if released. If release to water, boom and recover if possible.
<b>Clean Up Methods</b>	All equipment used when handling this material must be grounded. Move containers from spill area. SMALL SPILLS: Absorb residue with an inert material. Use clean non-sparking tools to collect absorbed material. Place residues in a suitable, covered, properly labeled container. Dispose of via a licensed waste disposal contractor. LARGE SPILLS: A vapour-suppressing foam may be used to reduce vapour. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Absorb or cover spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.
<b>Additional Remarks</b>	Waste must be disposed of in accordance with federal, provincial and local environmental control regulations.

## SECTION 7. HANDLING AND STORAGE

<b>Fire Prevention</b>	Keep away from heat, open flames sparks and other ignition sources. Use explosion-proof equipment, intrinsically safe electrical systems, and non-sparking tools. Material may accumulate static charges, which could cause a spark. Static charge build up could become an ignition source. Bond and ground equipment prior to transferring material.
<b>Worker Contact</b>	Empty containers may contain flammable product residue. Do NOT cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity or other sources of ignition. Wear appropriate personal protective equipment. This material may contain trace amounts of hydrogen sulfide, which will off-gas and collect in harmful concentrations in the headspace of enclosed spaces. Do not inhale headspace gases. Hot product can cause thermal burns to eyes and skin. Avoid contact with eyes, skin, and clothing. Avoid skin contact. Avoid breathing vapours or mists. Use only with adequate ventilation. Maintain good personal hygiene. Do not smoke, eat or drink when handling this product. Wash thoroughly after handling product and before eating, drinking or smoking.
<b>Storage Requirements</b>	Store in a cool, dry, well-ventilated area, away from incompatible materials. Keep container tightly closed when not in use. Open slowly in order to control possible pressure release. Storage containers should be grounded and bonded to prevent accumulation of static charge.
<b>Additional Remarks</b>	None

## SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

<b>Exposure Guidelines / Limits</b>	Not established for product.
<b>Exposure Guideline / Limits for Components</b>	
Heavy Fuel Oil	Supplier recommended TWA 0.1 mg/m3, absorbed through skin.
Hydrogen sulfide	ACGIH TLVL TWA 1 ppm; STEL 5 ppm
Kerosene	Supplier recommended TWA 5 mg/m3 stable aerosols; 200 mg/m3 vapour. ACGIH TLV: TWA 200 mg/m3 non-aerosols (as total hydrocarbon vapour)

Naphthalene	ACGIH TWA 10 ppm; STEL 15 ppm, absorbed through skin.
Please consult with local authorities for acceptable provincial exposure limits since values can vary from jurisdiction to jurisdiction.	
<b>Engineering Controls</b>	Mechanical ventilation is required for all enclosed situations to control off-gases.. Electrical and mechanical equipment should be explosion-proof. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved. For entry into confined spaces (e.g. bulk storage tanks) a proper confined space entry procedure must be followed, including ventilation and testing of tank atmosphere. Local ventilation is recommended where mechanical ventilation is ineffective in controlling airborne concentration to below recommended occupational exposure limit. Make up air should always be supplied to balance air exhausted (either generally or locally).
<b>Personal Protection</b>	Personal Protective Equipment recommendations are based on anticipated known manufacturing and use conditions. These conditions are expected to result in only incidental exposure. A thorough review of the job tasks and conditions by a safety professional is recommended, however, to determine the level of person protective equipment appropriate for these job tasks and conditions.
<b>Respirator</b>	A respirator should be worn if there is potential for inhalation of vapours or mists above occupational exposure limits. A NIOSH-approved air-purifying mask equipped with organic vapour cartridges with P95 prefilters is recommended for low levels of vapours or mists. For protection from hydrogen sulfide, and in poorly ventilated areas or emergency situations use a NIOSH-approved atmosphere-supplying respirator.
<b>Hands</b>	Thermal gloves for handling hot product. For cold product, wear nitrile or neoprene gloves. Wear gauntlet-style gloves if forearms may be exposed to product.
<b>Eyes</b>	Chemical safety goggles and face shield if splashing may occur.
<b>Body</b>	Wear long sleeves and pants resistant to oils to prevent skin contact. Remove contaminated clothing and laundry before reuse.
<b>Feet</b>	Stepped toe, chemical resistant boots.
<b>Other</b>	Emergency eyewash fountains and safety showers should be in the immediate vicinity of any potential exposure.
<b>Protective Clothing (Pictograms)</b>	
<b>Additional Remarks</b>	None

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Odour and Appearance</b>	Petroleum/solvent odour; viscous, brown/black.
<b>Odour Threshold</b>	Not available
<b>Specific Gravity</b>	0.95 – 1.11
<b>Flashpoint</b>	> 40 °C (ASTM D-56))
<b>Upper Flammable Limit</b>	Not available
<b>Lower Flammable Limit</b>	Not available
<b>Autoignition Temperature</b>	Not available
<b>Vapour Density (air=1)</b>	>1
<b>Vapour Pressure</b>	Not available
<b>Evaporation Rate</b>	Not available
<b>Boiling Point</b>	Initial boiling point 125°C
<b>Pour Point</b>	<21 °C
<b>pH</b>	Not available
<b>Viscosity</b>	Not available
<b>Solubility in Water</b>	Negligible
<b>Coefficient of Water/Oil</b>	Not available
<b>Additional Remarks</b>	None

## SECTION 10. STABILITY AND REACTIVITY DATA

<b>Chemical Stability</b>	Stable under normal conditions
<b>Conditions of Instability</b>	Extreme heat, open flames, static charge, sparks.
<b>Incompatible Material</b>	Strong oxidizing agents, strong acids, halogens, chlorine, alkalis.
<b>Conditions of Reactivity</b>	None specified

<b>Hazardous Decomposition Products</b>	Does not decompose at ambient temperatures.
<b>Hazardous Polymerization</b>	Will not occur
<b>Additional Remarks</b>	None

## SECTION 11. TOXICOLOGICAL INFORMATION

<b>Acute Toxicity</b>	No data available for product.
<b>Acute Toxicity for Components</b>	
Heavy fuel oil	Acute LD50 (rat, oral): >2000 mg/kg Acute LD50 (rabbit, dermal): >2000 mg/kg Acute LC50 (rat, inhalation):>5000 mg/kg
Kerosene	Acute LD50 (rat, oral): >2000 mg/kg Acute LD50 (rabbit, dermal): >2000 mg/kg Acute LC50 (rat, inhalation):>5000 mg/kg
<b>Effects of Acute Exposure</b>	<i>See Hazards Identification (Section 2)</i>
<b>Effects of Chronic Exposure</b>	Dermal exposures to high concentrations of some components of heavy fuel oil have caused severe skin irritation with weight loss and some mortality, liver, kidney, thymus, bone marrow, blood and lymphoid tissue toxic effects in animal studies. Inhalation to high concentrations have resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.
<b>Irritancy of Product</b>	<i>See Hazards Identification (Section 2)</i>
<b>Skin Sensitization</b>	Not available
<b>Respiratory Sensitization</b>	Not available
<b>Carcinogenicity</b>	May cause cancer. Under conditions of poor personal hygiene and prolonged repeated contact, some polycyclic aromatic compound have been suspected as a cause of skin cancer in humans. This material contains kerosene which is classified by ACGIH as A3 (confirmed animal carcinogen but not likely to cause cancer in humans except by uncommon or unlikely routes or levels of exposure). This material may contain catalytic cracked clarified oil (CAS# 64741-62-4) and/or residual fuel oil (CAS# 68476-33-5) both of which have been carcinogenic in animal studies and are classified by IARC as Group 2B (possibly carcinogenic to humans). This material contains trace amounts of naphthalene which is classified by IARC as Group 2B (possibly carcinogenic to humans).
<b>Reproductive Toxicity</b>	Not available
<b>Teratogenicity</b>	<i>See Embryotoxicity.</i>
<b>Embryotoxicity</b>	Dermal exposures to high concentrations of some components of heavy fuel oil have caused maternal toxicity, decreased fetal weight and fetal survival, and some external fetal malformations in animal studies.
<b>Mutagenicity</b>	Some components of heavy fuel oil have caused mutations in-vitro.
<b>Synergistic Products/Effects</b>	Not available
<b>Additional Remarks</b>	None

## SECTION 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Material is expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
<b>Aquatic Toxicity for Components</b>	Not available
<b>Degradability</b>	Expected to be inherently biodegradable.
<b>Bioaccumulation</b>	Not available
<b>Mobility</b>	The more volatile component will partition rapidly to air. Higher molecular weight component has low water solubility and will float. Is expected to migrate from water to land. Heaviest component is expected to sink and migrate to sediments.
<b>Additional Remarks</b>	Do not allow product or run-off from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches.

## SECTION 13. DISPOSAL CONSIDERATIONS

It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Dispose in accordance with federal, provincial and local regulations. This product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Dispose of all packaging in accordance with local regulations. Empty containers may contain residue and should be completely drained and safely stored until appropriately reconditioned or disposed. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND,

OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

**Additional Remarks** Processing, use, dilution or contamination of this product may cause its physical and chemical properties to change.

## SECTION 14. TRANSPORT INFORMATION

### TDG Classification

PETROLEUM PRODUCTS, N.O.S. (Contains kerosene, heavy fuel oil), Class 3, UN1268, PG III



**Marine Pollutant** Not available

**Additional Transport Information** Not available

**Emergency Response Guide** Guide 128

## SECTION 15. REGULATORY INFORMATION

### Canadian Regulations

**WHMIS** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by the CPR.

**DSL Inventory** All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL), exempt or have been notified under CEPA.

**TSCA Inventory Status** All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory.

**Additional Remarks** None

## SECTION 16. OTHER INFORMATION

**NFPA Rating** Health: 2 Flammability: 2 Instability: 0 Special: none

**HMIS Rating** Health: 2\* Flammability: 2 Reactivity: 0 Other: none  
*0=Insignificant 1 = Slight 2= Moderate 3= High 4 = Extreme \* = chronic*

**Revisions** Reviewed and updated throughout. Significant changes to Section 2 Hazards Identification, Section 3 Composition and Ingredient Information, Section 4 First Aid, and Section 14 Transport Information. TDG classification has changed.

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### Trican Well Service Ltd. Disclaimer

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END OF MATERIAL SAFETY DATA