






MATERIAL SAFETY DATA SHEET

| SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION | | | |
|--|---|--------------------------|------------------|
| Product Name | Mudsol W | Code | 1477 |
| Supplier | Trican Well Service Ltd. 2900, 645 – 7 th 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) | Revision Date | December 7, 2010 |
| Product Uses | Water-based diluent | Supersedes Date | November 7, 2010 |
| 24 Hour Emergency Numbers | CANUTEC 613-996-6666 (Canada 24 hours) | Original Creation | June 1, 2004 |

| SECTION 2. HAZARDS IDENTIFICATION | |
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| WHMIS (Pictograms) | Workplace Hazardous Material Information System Classification |
|    | B2 Flammable Liquid D1A Very Toxic material causing immediate & serious toxic effects D2A Very Toxic material causing other toxic effects D2B Toxic materials causing other toxic effects |
| Hazard Summary | <p>DANGER! FLAMMABLE LIQUID AND VAPOUR. IRRITANT. TOXIC. DEVELOPMENTAL HAZARD. ENVIRONMENTAL HAZARD</p> <p>Avoid excessive heat, open flames, sparks and ignition sources. Liquid can release vapors that readily form flammable mixtures at or above the flashpoint.</p> <p>Product can accumulate static charge which may cause a fire or explosion.</p> <p>Skin and eye irritant. Effect may be severe.</p> <p>Components of this material can be absorbed through the skin in toxic amounts. Avoid prolonged or repeated skin contact.</p> <p>Inhalation of vapours may cause respiratory irritation, headache, dizziness, nausea, loss of consciousness, and in cases of extreme exposure, possibly death.</p> <p>Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.</p> |
| Routes of Exposure | Eyes, skin, inhalation and ingestion. |
| Potential Acute Health Effects | |
| Eyes Contact | Direct liquid contact with eyes may cause eye irritation. Vapours or mists may cause eye irritation. Effects may be slow to heal. |
| Skin Contact/Absorption | Direct liquid contact with skin may cause skin irritation, especially after prolonged or repeated contact. Vapours or mists may cause skin irritation. Components of this material can be absorbed through the skin in toxic amounts. Avoid prolonged or repeated skin contact. |
| Inhalation | Vapours or mists may cause irritation of respiratory tract. Symptoms include sore throat, coughing and sneezing. Inhalation of vapours may cause headache, dizziness, nausea, loss of consciousness, and in cases of extreme exposure, possibly death. |
| Ingestion | Harmful if swallowed. Moderately toxic. Small amounts swallowed incidentally to normal handling operations are not likely to cause injury. Large doses are harmful if swallowed. Ingestion of methanol can cause blindness. |
| Medical Conditions Aggravated by Exposure | Not available |
| <i>See also Toxicological Information (Section 11)</i> | |

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| Additional Remarks | None |
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SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Name | CAS # | % (vol) |
|-------------------------------|------------|---------|
| Methanol | 67-56-1 | 15-40 |
| 2-Butoxyethanol | 111-76-2 | 10-30 |
| Alcohols, C10-16, ethoxylated | 68002-97-1 | 7-13 |

SECTION 4. FIRST AID MEASURES

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| Eye Contact | Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek medical attention immediately after flushing. |
| Skin Contact | Wash thoroughly with soap and water for at least 15 minutes. Seek medical attention if symptoms develop. |
| Inhalation | Remove person to fresh air. If not breathing, provide artificial respiration. If breathing is difficult or symptoms develop, seek prompt medical attention. |
| Ingestion | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If conscious, have person rinse mouth thoroughly with water.. Seek medical attention immediately. |
| Notes to Physician | Treat symptomatically. Keep under observation. Effects of methanol may be delayed. |
| Additional Remarks | None |

SECTION 5. FIRE FIGHTING MEASURES

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| Conditions of Flammability | Flammable 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. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Containers exposed to intense heat may rupture. |
| Extinguishing Media | Use dry chemical, carbon dioxide, foam 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. |
| Protection of Firefighters | As in any fire, wear full fire fighting gear including NIOSH-approved positive pressure self-contained breathing apparatus. |
| Hazardous Combustion Products | Carbon monoxide, carbon dioxide and other toxic vapours. |
| Sensitivity to Static Discharge | This product is sensitive to static discharge. Bond and ground all containers before transferring material. |
| Additional Remarks | None |


SECTION 6. ACCIDENTAL RELEASE MEASURES

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| Personal Precautions | 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. |
| Environmental Precautions | Prevent substance from entering natural bodies of water and sewer systems. Spilled product may pose a risk to the aquatic ecosystem if released. |
| Clean Up Methods | SMALL SPILLS: Move containers from spill area. Absorb with an inert material. Place residues in a suitable, covered, properly labeled container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. LARGE SPILLS: Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product. |
| Additional Remarks | Waste must be disposed of in accordance with federal, provincial and local environmental control regulations. |

SECTION 7. HANDLING AND STORAGE

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| Fire Prevention | Keep away from heat, open flames, sparks and other sources of ignition. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers may contain flammable product residue. Do not reuse container. Do NOT cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity or other sources of ignition. |
| Worker Contact | Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated 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. |
| Storage Requirements | Store in a cool, dry, well-ventilated area, away from incompatible materials. Keep container tightly closed when not in use. |
| Additional Remarks | None |

SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

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| Exposure Guidelines / Limits | Not established for product. |
| Exposure Guideline / Limits for Components | |
| Methanol | ACGIH TLV: TWA 200 ppm; STEL 250 ppm ; absorbed through skin. |
| 2-Butoxyethanol | ACGIH TLV: TWA 20 ppm |
| Please consult with local authorities for acceptable provincial exposure limits since values can vary from jurisdiction to jurisdiction. | |
| Engineering Controls | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations below their respective occupational exposure limits. |
| Personal Protection | |
| 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. | |
| Respirator | If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. A NIOSH-approved air-purifying mask equipped with organic vapor cartridges with P95 prefilters may be appropriate. In poorly ventilated areas or emergency situations use a NIOSH-approved atmosphere-supplying respirator. |
| Hands | Nitrile or neoprene gloves. |
| Eyes | Chemical safety goggles and/or face shield if splashing may occur during handling. |
| Body | Wear long sleeves and pants to prevent prolonged or repeated skin contact. Remove contaminated clothing and launder before reuse. |
| Feet | Steed toed, chemical resistant boots. |
| Other | Emergency eyewash fountains and safety showers should be in the immediate vicinity of any potential exposure. |
| Protective Clothing (Pictograms) | |
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| Additional Remarks | None |

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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| Physical State | Liquid |
| Odour and Appearance | Aromatic odour; thin liquid with tan colour |
| Odour Threshold | Not available |
| Specific Gravity | 0.941 |
| Flashpoint | 35 °C estimate |
| Lower Flammable Limit | Not available |
| Upper Flammable Limit | Not available |
| Autoignition Temperature | 238 °C (2-butoxyethanol) |
| Vapour Density (air=1) | Not available |

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| Vapour Pressure | Not available |
| Evaporation Rate | Not available |
| Boiling Point | 65 °C (methanol) |
| Freezing / Melting Point | < -25 °C |
| pH | Not available |
| Viscosity | Not available |
| Solubility in Water | completely |
| Coefficient of Water/Oil | Not available |
| Additional Remarks | None |

SECTION 10. STABILITY AND REACTIVITY DATA

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| Chemical Stability | Stable |
| Hazardous Polymerization | Will not occur |
| Sensitivity to Mechanical Impact | No |
| Incompatible Material | Strong oxidizing agents. |
| Conditions of Reactivity | Extreme heat, static charge, sparks. |
| Hazardous Decomposition Products | Not available |
| Additional Remarks | None |

SECTION 11. TOXICOLOGICAL INFORMATION

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| Acute Toxicity | Not available for product. |
| Acute Toxicity for Components | |
| Methanol (67-56-1) | Acute LD50 (rat, oral): 5628 mg/kg Acute LD50 (rabbit, dermal): 15800 mg/kg Acute LC50 (rat, inhalation): 64 000 ppm/4hr |
| 2-Butoxyethanol | Acute LD50 (rat, oral): 400 mg/kg Acute LD50 (rabbit, oral): 320 mg/kg Acute LD50 (rabbit, dermal): 220 mg/kg and 99 mg/kg Acute LC50 (rat, inhalation): 450 ppm/4hr |
| Alcohols, C10-16, ethoxylated | Acute LD50 (rat, oral): >2000 mg/kg (Rabbit)eye and skin irritant |
| Effects of Acute Exposure | <i>See Hazards Identification (Section 2)</i> |
| Effects of Chronic Exposure | Chronic inhalation of methanol can cause central nervous system depression, blurred vision, and gastrointestinal effects. Chronic inhalation of methanol has caused liver effects in laboratory animals. Chronic oral exposure to methanol has caused central nervous system effects and eye effects in laboratory animals. Excessive exposure to 2-butoxyethanol may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Repeated exposure may cause red blood cell hemolysis, leading to possible kidney and liver damage. |
| Irritancy of Product | <i>See Hazards Identification (Section 2)</i> |
| Skin Sensitization | Not expected |
| Respiratory Sensitization | Not expected |
| Carcinogenicity | 2-Butoxyethanol is listed by ACGIH as A3 (confirmed animal carcinogen with unknown relevance to humans). |
| Reproductive Toxicity | Not expected |
| Teratogenicity | Methanol has caused birth defects in rats exposed by the oral and inhalation routes. |
| Embryotoxicity | Methanol has shown embryotoxicity in animal studies. |
| Mutagenicity | Methanol has produced mutagenicity in animal studies. |
| Synergistic Products/Effects | None expected |
| Additional Remarks | None |

SECTION 12. ECOLOGICAL INFORMATION

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| Aquatic Toxicity | Not available for product. |
| Aquatic Toxicity for Components | |
| 2-Butoxyethanol | Fish Species Data: LC50 1490 mg/L (Lepomis macrochirus) Material is practically non-toxic to fish on an acute basis |
| Alcohols, C10-16, ethoxylated | Environmental fate and transport Biodegradation: Test method: mod. OECD 303A Method of analysis: Bismuth-active substance Degree of elimination: >= 90 % |

Test method: OECD 301B; ISO 9439; 92/69/EEC, C.4-C
 Method of analysis: CO2 formation relative to the theoretical value
 Degree of elimination: > 60 % (28 d)
 Evaluation: Readily biodegradable (according to OECD criteria).
 Analogous: Assessment derived from products with similar chemical character.

Chemical oxygen demand (COD): 2,625 mg/g
Biochemical oxygen demand (BOD): : 330 mg/g
Ratio BOD/COD: 30.2 %
Adsorbable organically-bound halogen (AOX):
 This product contains no organically-bound halogen.

Environmental Toxicity

Toxicity to fish: LC50 (48h) 1 mg/L (Rainbow trout)
Toxicity to aquatic invertebrates: EC50 (48h) 0.1 – 1 mg/L (Daphnia magna)
Toxicity to aquatic plants: EC50 (72h) 0.1 – 1 mg/L (green algae)
 The above data is based on analogous assessment of products with similar chemical character.

Toxicity to microorganisms: EC10 >1000 mg/L (DEV-L2 activated sludge)
Other ecotoxicological advice: Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations. Do not release untreated into natural waters.

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| Degradability | Not available |
| Bioaccumulation | Not available |
| Mobility | Not available |
| Additional Remarks | 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. Harmful to aquatic life. |



SECTION 13. DISPOSAL CONSIDERATIONS

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

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.**

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| Additional Remarks | None |
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SECTION 14. TRANSPORT INFORMATION

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| TDG Classification | FLAMMABLE LIQUID, TOXIC, N.O.S. (contains methanol, 2-butoxyethanol), Class 3 (6.1), UN1992, PG III |  |  |
| Marine Pollutant | Not available | | |
| Additional Transport Information | Not available | | |
| Emergency Response Guide | Guide 131 | | |

SECTION 15. REGULATORY INFORMATION

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| 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) or exempt. |
| 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

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| Revisions | Reviewed and updated. Format changes. TDG classification has changed. WHMIS classification has changed. |
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| Prepared by | Trican Well Service Corporate Health, Safety & Environment Department (403) 723-3688 |
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Trican Well Service Ltd. Disclaimer

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