


Material Safety Data Sheet

| Section 1. Chemical Product and Company Identification | | |
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| Product Name: | Ethylene Glycol 60% | Version: 4 Effective Date: July 11, 2017 |
| Supplier / Manufacturer: | Chemfax Products Ltd 11444 - 42 Street SE Calgary, AB T2C 5C4 Tel: 403-287-2055 | |
| Material Uses | Heat transfer fluid | |
| 24 Hour Emergency | Canutec (613) 996-6666 | |
| WHMIS | | |
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| This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR | | |
| HMIS Ratings for this product are: Health 2 , Flammability 0 , Reactivity 0 | | |

| Section 2. Composition and Information on Ingredients | | |
|---|----------|-------------|
| Name | CAS# | % by weight |
| Ethylene glycol | 107-21-1 | 60 |
| See Section 8 for information on permissible exposure limits and threshold limit values | | |

| Section 3. Hazards Identification | |
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| Physical State and Appearance | Clear, colourless liquid with a mild odour |
| Hazard Summary | Highly toxic, irritant |
| Routes of Exposure | Skin contact & absorption, ingestion, inhalation, eyes |
| Potential Acute Health Effects | Skin: Irritant. Can cause burning and redness. Product will be absorbed through the skin and can cause health effects. Eyes: Irritant. Will cause irritation and redness. Inhalation: Harmful. Inhalation of larger quantities of this |

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| | <p>material will be harmful. Irritation of the respiratory tract, digestive tract disturbances, vomiting and diarrhea, faintness, light-headedness, fatigue, headache, cyanosis (causes blue colouration due to lack of oxygen), lung oedema (fluid in the lungs), convulsions, coma and death</p> <p>Ingestion: Toxic. Ingestion of this product may lead to kidney, liver and brain damage. Digestive tract disturbances, vomiting and diarrhea, kidney failure and liver damage.</p> |
| Medical Conditions Aggravated by Exposure | The following conditions or organs already damaged may be aggravated by exposure to this material:- asthma, liver, kidney, central nervous system, chronic lung disease, coronary artery disease or anaemia's. |
| See Toxicological Information – Section 11 | |
| Additional Hazard Identification Remarks | None |

| Section 4. First Aid Measures | |
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| Eye Contact | Flush eyes with water for 15 minutes. Seek medical attention. |
| Skin Contact | Flush area with water. If irritation persists seek medical attention. Launder clothing before reuse. |
| Inhalation | Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention. |
| Ingestion | Give two glasses of water. Do not induce vomiting. Lay victim on left side to prevent aspiration of any vomit. Seek immediate medical attention. |
| Notes to Physician | Effects of ethylene glycol poisoning appear in three stages. Initial stages in the first 6 – 12 hours is characterised by central nervous system effects (transient exhilaration, nausea, vomiting and potentially coma, convulsions and death). The second stage lasts from 12 – 36 hours after exposure and is initiated by the onset of coma. It is characterised by tachypnia (laboured breathing), tachycardia (rapid heart rate), hypotension (low blood pressure), cyanosis (blue colour due to lack of oxygen) and in severe cases pulmonary oedema (fluid in the lungs), bronchopneumonia, cardiac enlargement and congestive failure. The final stage occurs at 24 – 72 hours post exposure and is characterised by renal failure, from mild symptoms to complete anuria (inability to produce urine) with acute tubular necrosis that can lead to death. Oxaluria (oxalic acid in the urine) is found in most cases. Ethylene glycol poisoning will always cause metabolic acidosis (blood pH is lower than 7.5). |
| Additional First Aid Remarks | Treatment is required within the first three hours of exposure. High proof whisky can be administered prior to hospitalisation if treatment is delayed. Haemodialysis is the most effective means of removing ethylene glycol and its metabolites from the body |

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| Section 5. Fire Fighting Measures | |
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| Flammability of the Product | Non flammable, however it will burn if involved in a fire. |
| Flash Point | No data |
| Explosive Limits | No data |
| Auto Ignition Temperature | No data |
| Static Discharge | No |
| Suitable Extinguishing Media | Carbon dioxide, dry chemical, water spray |
| Hazardous Combustion Products | Alcohols, aldehydes, carbon dioxide and carbon monoxide, ethers, toxic fumes |
| Precautions for Fire Fighting | Fire fighters should wear self contained breathing apparatus and full protective clothing. Use water spray to cool containers and structures exposed to fire. |

| Section 6. Accidental Release Measures | |
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| Personal Precautions | Gloves (neoprene), safety glasses, coveralls chemical resistant |
| Environmental Precautions | Do not allow to enter storm sewers and waterways |
| Methods for Clean Up | Wear full protective equipment. Dyke area and collect spilt material by pumping into holding vessel or by soaking up on absorbent material, then shovelling into an appropriate container for disposal. Area will be slippery with residues, wash area with water. |

| Section 7. Handling and Storage | |
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| Handling | Handle with care. Do not eat or drink near this product, employ good housekeeping practices. Empty containers may contain residues, these should not be cut or welded, vapours mixed with air may burn. |
| Storage | Store in a cool dry place. Keep containers closed at all times. |

| Section 8. Exposure Controls and Personal Protection | | | | |
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| Exposure Guidelines | TWA: 8 Hr | STEL: 15 min | Ceiling | IDLH * |
| Ethylene glycol | | | 50 ppm (NIOSH) 100 ppm (ACGIH) | |
| Exposure Controls | Local exhaust ventilation | | | |

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| Personal Protection | |
| Respiratory | Air purifying respirator with cartridges for organic vapours/mists if exposure limits are being exceeded |
| Skin | |
| Eyes | Gloves (neoprene) and chemical resistant coveralls |
| Other | Safety glasses |

| Section 9. Physical and Chemical Properties | |
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| Physical State and Appearance | Clear, colourless liquid, with mild odour |
| Odour Threshold | 0.08 – 25 ppm |
| pH | 8 |
| Boiling Point | No data |
| Melting Point / Freezing point | No data |
| Evaporation Rate | No data |
| Vapour Density | No data |
| Vapour Pressure | No data |
| Specific Gravity | 1.088 Specific gravity |
| Solubility in Water | Completely miscible in water |
| % Volatile | No data |
| Other Data | None |

| Section 10. Stability and Reactivity | |
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| Chemical Stability | Stable |
| Hazardous Polymerisation | Will not occur |
| Conditions to Avoid | Naked flames |
| Materials to Avoid | Alkali metals, strong acids, strong alkalis and strong oxidising agents |
| Hazardous Decomposition Products | Glycolic acid |

| Section 11. Toxicological Information | |
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| Principle Routes of Exposure | |
| Skin: | Irritant. Can cause burning and redness. Product will be absorbed through the skin and can cause health effects. |
| Eyes: | Irritant. Will cause irritation and redness. |
| Inhalation: | Harmful. Inhalation of larger quantities of this material will be harmful. Irritation of the respiratory tract, digestive tract disturbances, vomiting and diarrhea, faintness, light-headedness, fatigue, headache, cyanosis (causes blue colouration due to lack of oxygen), lung oedema (fluid in the lungs), convulsions, coma and death |
| Ingestion: | Toxic. Ingestion of this product may lead to kidney, liver and brain damage. Digestive tract disturbances, vomiting and |

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| diarrhea, kidney failure and liver damage. | |
| Additional Information | |
| Acute Toxicity | |
| Ethylene glycol | LD50: 4700 mg/kg (Rat, oral) LD50: 9530 mg/kg (Mouse, oral) LD50: 10876 mg/kg (Rabbit, dermal) |
| Chronic Toxic Effects – Liver and kidney damage | |
| Carcinogenicity – Not listed | |
| Reproductive Toxicity / Teratogenicity / Embryotoxicity / Mutagenicity – Ethylene glycol has caused birth defects in animals at high oral doses. It did cause harm to the pregnant animal or fetus when applied to the skin of the pregnant animal. | |

| Section 12. Ecological Information | |
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| Ecotoxicity | Ethylene glycol LC50: 51,000 mg/L (Flathead minnow) LC50: 27,549 mg/L (Bluegill) LC50: 18,000 – 46,000 mg/L (Rainbow trout) |
| BOD and COD | BOD: 8 to 82 % @ 5days; 58 to 75% @ 10 days; 81 to 94 % @ 20 days COD: 1.29 mg/mg |
| Biodegradability / OECD | Ethylene glycol is biodegradable |
| Toxicity of the Products of Biodegradation | No data |
| Special Remarks | None |

| Section 13. Disposal Considerations | |
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| Dispose of in accordance with local, provincial and federal regulations | |

| Section 14. Transport Information | |
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| TDG Classification | Not regulated for TDG |
| Emergency Response Guide # | Not applicable |
| Marine Pollutant | No data |
| Special Precautions | None |

| Section 15. Regulatory Information | |
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| Canada – DSL Inventory | All components of this product are either on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL) or exempt |
| TSCA | All components of this product are either on the Toxic Substances |

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| | Control Act (TSCA) Inventory List or exempt |
| WHMIS Hazard Class | D2B D2A |
| Additional Information | None |

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| Section 16. Other Information | |
| Prepared by: | Chemfax Products Ltd., Technical Department |
| Date Prepared: | November 15, 2013 |
| Revision Date: | July 11, 2017 |
| Disclaimer | <p>Notice to reader</p> <p>To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.</p> <p>Chemfax Products Ltd. expressly disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose with respect to the product provided.</p> |