



# Safety Data Sheet

| Section 1. Identification                      |   |   |
|--|---|---|
| <b>Product Identifier</b>                      | Ethylene Glycol   | <b>Version: 5</b><br><b>Effective Date: 15 February, 2016</b> |
| <b>Other Means Of Identification</b>           | 1,2 ethylene diol   |   |
| <b>Initial Supplier Identifier</b>             | Chemfax Products Ltd.<br>11444 – 42 Street SE<br>Calgary, AB T2C 5C4<br>Tel: 403-287-2055 |   |
| <b>Recommended Use and Restrictions On Use</b> | Heat transfer fluid. No restrictions.   |   |
| <b>Product Family</b>                          | Diol  |   |
| <b>24 Hour Emergency</b>                       | Canutec (613) 996-6666  |   |

| Section 2. Hazard Identification          |  |
|---|--|
| <b>Hazard Classification</b>              |   |
| <b>Health Hazards</b>                     | <p>Acute Toxicity (Oral) - Category 4<br/>           Specific Target Organ Toxicity (Repeated Exposure) - Category 2</p>   |
| <b>Signal Word</b>                        | Warning  |
| <b>Hazard Statement</b>                   | Harmful if swallowed. May cause damage to organs (kidney) through prolonged or repeated exposure.  |
| <b>Precautionary Prevention Statement</b> | Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.<br>Do not breathe dust, fume, gas, mist, vapours or spray.                     |
| <b>Precautionary Response Statement</b>   | IF SWALLOWED: Call a doctor if you feel unwell. Rinse mouth.   |
| <b>Precautionary Storage Statement</b>    | No statement.  |
| <b>Precautionary Disposal Statement</b>   | Dispose of contents/container in accordance with local regulations.  |
| <b>Other Hazards</b>                      | None   |

# Safety Data Sheet

| <b>Section 3. Composition / Information on Ingredients</b> |                                |   |                    |
|--|--------------------------------|---|--------------------|
| <b>Chemical Name</b>                                       | <b>Common Name or Synonyms</b> | <b>CAS NO. and Other Unique Identifiers</b> | <b>% by weight</b> |
| Ethylene Glycol  | 1,2 ethylene diol              | 107-21-1                                    | 100                |

| <b>Section 4. First-Aid Measures</b>                              |   |
|---|---|
| <b>Eye Contact</b>  | Flush eyes with water for 15 minutes. Seek medical attention.   |
| <b>Skin Contact</b>   | Flush area with water. If irritation persists seek medical attention. Launder clothing before reuse.  |
| <b>Inhalation</b>   | Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention.   |
| <b>Ingestion</b>  | Give two glasses of water. Do not induce vomiting. Lay victim on left side to prevent aspiration of any vomit. Seek immediate medical attention.  |
| <b>Most Important Symptoms and Effects Both Acute and Delayed</b> | Breathing difficulties.   |
| <b>Immediate Medical Attention and Special Treatment</b>          | <p>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 tachypnea (laboured respiration), tachycardia (rapid heart beat), hypotension (low blood pressure), cyanosis (blue colour due to lack of oxygen) and in severe cases pulmonary oedema, 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 urinate) 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 becomes lower than 7.5).</p> <p>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.</p> |

# Safety Data Sheet

| Section 5. Fire-Fighting Measures                                     |   |
|---|---|
| <b>Suitable and Unsuitable Extinguishing Media</b>                    | Carbon dioxide, dry chemical, water spray.  |
| <b>Hazardous Combustion Products</b>                                  | Alcohols, aldehydes, carbon dioxide and carbon monoxide, ethers, toxic fumes.   |
| <b>Specific Hazards Arising From the Product</b>                      | Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.            |
| <b>Special Protective Equipment and Precautions For Fire-Fighters</b> | 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                                     |  |
|--|--|
| <b>Personal Precautions, Protective Equipment and Emergency Procedures</b> | Gloves (neoprene), safety glasses, coveralls.<br>Ensure adequate ventilation. Do not breathe vapors or spray mist.<br>Avoid contact with skin, eyes and clothing.  |
| <b>Environmental Precautions</b>   | Prevent entry of spilled materials into sewers or watercourses. Dike if required.  |
| <b>Methods and Materials for Containment and Clean Up</b>                  | 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      |   |
|--------------------------------------|---|
| <b>Precautions For Safe Handling</b> | Handle with care. Do not eat or drink near this product, employ good housekeeping practices. Empty containers will contain residues, these should not be cut or welded, vapours mixed with air can form explosive mixtures. |
| <b>Conditions For Safe Storage</b>   | Store in a cool dry place. Keep containers closed at all times.   |

| Section 8. Exposure Controls and Personal Protection |  |                     |                |                     |
|--|--|---------------------|----------------|---------------------|
| <b>Control Parameters</b>                            | <b>TWA: 8 Hr</b>                           | <b>STEL: 15 min</b> | <b>Ceiling</b> | <b>IDLH *</b>       |
| Ethylene Glycol                                      |  |                     | 50 ppm (NIOSH) | 50 ppm (CAD AB OEL) |
|  | * Immediately Dangerous to Life and Health |                     |                |                     |
| <b>Exposure Controls</b>                             | Local exhaust ventilation                  |                     |                |                     |

## Safety Data Sheet

|   |   |
|---|---|
| <b>Appropriate Engineering Controls</b> | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. |
| <b>Individual Protective Measures</b>   | If exposure limits are exceeded:  |
| <b>Eye / Face Protection</b>            | Safety glasses  |
| <b>Skin Protection</b>                  | Wear gloves (neoprene), chemical resistant coveralls  |
| <b>Respiratory Protection</b>           | An air purifying respirator, fitted with cartridges for organic vapours must be worn.   |

| Section 9. Physical and Chemical Properties    |                              |
|--|------------------------------|
| <b>Appearance</b>                              | Clear, colourless liquid     |
| <b>Odour</b>                                   | Mild                         |
| <b>Odour Threshold</b>                         | 0.08 – 25 ppm                |
| <b>pH</b>                                      | 8.0                          |
| <b>Flash Point</b>                             | 116 – 121 °C                 |
| <b>Boiling Point and Boiling Range</b>         | 197 °C                       |
| <b>Melting Point and Freezing Point</b>        | – 13 °C                      |
| <b>Evaporation Rate</b>                        | No data.                     |
| <b>Vapour Pressure</b>                         | 0.01 kPa @ 25 °C             |
| <b>Vapour Density</b>                          | 2.1                          |
| <b>Relative Density</b>                        | 1.116                        |
| <b>Solubility</b>                              | Completely miscible in water |
| <b>Partition co-efficient, n-Octanol/Water</b> | No data                      |
| <b>Auto-ignition Temperature</b>               | 398 – 417 °C                 |
| <b>Decomposition Temperature</b>               | No data                      |
| <b>Viscosity</b>                               | No data                      |

| Section 10. Stability and Reactivity      |   |
|---|---|
| <b>Reactivity</b>                         | Stable  |
| <b>Chemical Stability</b>                 | Stable  |
| <b>Possibility of Hazardous Reactions</b> | Will not occur  |
| <b>Conditions to Avoid</b>                | Naked flames  |
| <b>Incompatible Materials</b>             | Alkali metals, strong acids, strong alkalis and strong oxidising agents |
| <b>Hazardous Decomposition Products</b>   | Glycolic acid   |

## Safety Data Sheet

| <b>Section 11. Toxicological Information</b>                     |  |                    |                        |
|--|--|--------------------|------------------------|
| <b>Component Toxicity</b>  | <b>LD50 Oral</b>   | <b>LD50 Dermal</b> | <b>LC50 Inhalation</b> |
| Ethylene Glycol  | 6.14 g/kg(Rat)   | 9.53 g/kg (Rabbit) |                        |
| <b>Likely Routes of Exposure</b>                                 |  |                    |                        |
| <b>Skin:</b>   | May be irritant. Can cause burning and redness. Product will be absorb through the skin and can cause health effects.  |                    |                        |
| <b>Eyes:</b>   | May cause irritation and redness.  |                    |                        |
| <b>Inhalation:</b>   | Inhalation of larger quantities of this material will be harmful. Irritation of the respiratory tract, digestive tract disturbances, vomiting and diarrhoea, faintness, lightheadedness, fatigue, headache, cyanosis (causes blue colouration due to lack of oxygen), lung oedema (fluid in the lungs), convulsions, coma and death. |                    |                        |
| <b>Ingestion:</b>  | Ingestion of this product may lead to kidney, liver and brain damage. Digestive tract disturbances, vomiting and diarrhoea, kidney failure and liver damage.   |                    |                        |
| <b>Acute Toxicity Estimates (ATE)</b>                            | No data  |                    |                        |
| <b>STOT (Specific Target Organ Toxicity) – Single Exposure</b>   | Central nervous system (CNS)   |                    |                        |
| <b>Aspiration Toxicity</b>                                       | Not classified   |                    |                        |
| <b>STOT (Specific Target Organ Toxicity) – Repeated Exposure</b> | Kidney and Liver   |                    |                        |
| <b>Skin Corrosion / Irritation</b>                               | Irritant   |                    |                        |
| <b>Serious Eye Damage / Irritation</b>                           | Irritant   |                    |                        |
| <b>Respiratory or Skin Sensitization</b>                         | Not classified   |                    |                        |
| <b>Carcinogenicity</b>   | Not listed.  |                    |                        |
| <b>Reproductive Toxicity</b>                                     |  |                    |                        |
| - <b>Sexual Function and Fertility</b>                           | Not classified   |                    |                        |
| - <b>Development of Offspring</b>                                | Not classified   |                    |                        |
| - <b>Effects on or via Lactation</b>                             | Not classified   |                    |                        |
| <b>Germ Cell Mutagenicity</b>                                    | Not classified   |                    |                        |
| <b>Interactive Effects</b>                                       | Not classified   |                    |                        |
| <b>Other Information</b>   | Not applicable   |                    |                        |



Manufacturer of Specialty Chemicals

## Safety Data Sheet

| Section 12. Ecological Information   |   |
|--------------------------------------|---|
| <b>Ecotoxicity</b>                   | Ethylene glycol LC50: 51,000 mg/L (Flathead minnow) LC50: 27,549 mg/L (Bluegill) LC50: 18,000 – 46,000 mg/L (Rainbow trout) |
| <b>Persistence and Degradability</b> | Readily degradable  |
| <b>Bioaccumulative Potential</b>     | Not likely  |
| <b>Biodegradability</b>              | Is biodegradable  |
| <b>Mobility in Soil</b>              | Not available   |
| <b>Special Remarks</b>               | BOD: 8 to 82 % @ 5days; 58 to 75% @ 10 days: 81 to 94 % @ 20 days COD: 1.29 mg/mg.  |
| <b>Other Adverse Effects</b>         | None known  |

| Section 13. Disposal Considerations |   |
|-------------------------------------|---|
| <b>Disposal Considerations</b>      | Dispose of contents/container in accordance with local regulations. |

| Section 14. Transport Information |                |
|-----------------------------------|----------------|
| <b>UN Number</b>                  | Not applicable |
| <b>UN Proper Shipping Name</b>    | Not applicable |
| <b>Transport Hazard Class(es)</b> | Not applicable |
| <b>Packaging Group</b>            | Not applicable |
| <b>Environmental Hazards</b>      | Not applicable |
| <b>Bulk Transport</b>             | Not applicable |
| <b>Special Precaution</b>         | Not applicable |
| <b>DOT Erg#</b>                   | Not applicable |

| Section 15. Regulatory Information |  |
|------------------------------------|--|
| <b>Canada – DSL Inventory</b>      | All components of this product are either on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL) or exempt |
| <b>TSCA</b>                        | All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt                    |
| <b>Additional Information</b>      | None   |

# Safety Data Sheet

| Section 16. Other Information  |   |
|--|---|
| <b>NFPA Rating</b>   | Health-2/ Flammability-0/Reactivity-0/Special Hazard-Not applicable     |
| <b>HMIS Rating</b>   | Health-2/Flammability-0/Reactivity-0/Personal Protection-See Section 8. |
| <b>Prepared by:</b>  | Chemfax Products Ltd., Technical Department                             |
| <b>Date Prepared:</b>  | 18 August, 2011   |
| <b>Date of Latest Provision:</b>   | 15 February, 2016   |
| <p><b>Disclaimer</b><br/>           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> |   |