# MATERIAL SAFETY DATA SHEET

## PRODUCT NAME:  KESCOFROST

**Revision Date:** May 2010

**Bluegrass KESCO**  
1101 Industrial Blvd.  
Louisville, KY  40219

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### SECTION 1  OSHA HAZARD CLASSIFICATIONS

No significant immediately hazards for emergency response are known.

### SECTION 2  INGREDIENT INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>TLV</th>
<th>WEIGHT %</th>
<th>HAZARDOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene Glycol</td>
<td>57-55-6</td>
<td>None established</td>
<td>97 - 98</td>
<td>No</td>
</tr>
<tr>
<td>Sodium Nitrite</td>
<td>7632-00-0</td>
<td>None established</td>
<td>&lt; 0.5%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Remainders of contents comprise proprietary information.

### SECTION 3  PRECAUTIONARY LABEL INFORMATION AS PRESCRIBED BY THE U.S. EPA

This section not applicable to non-biocides.

### SECTION 4  FIRST AID INFORMATION

**EYE EXPOSURE...:** Thoroughly flush the eyes with large amounts of clean low-pressure water, occasionally lifting the upper and lower eyelids. Remove contact lenses after the initial 1 – 2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferable an ophthalmologist.

**SKIN EXPOSURE:** Not expected to present a significant skin hazard under anticipated conditions of normal use. If skin contact occurs, remove contaminated clothing and wash skin thoroughly.

**INHALATION....:** Not expected to present a significant inhalation hazard under anticipated conditions of normal use. If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain medical attention if breathing difficulty persists.

**INGESTION.........:** If large quantity swallowed, give lukewarm water (pint) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

**Note to Physician...:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: KESCOFROST

SECTION 5 PRIMARY ROUTES OF EXPOSURE

1. EFFECTS FROM ACUTE EXPOSURE:
   - **Eye Exposure**: May cause slight temporary eye irritation. Corneal injury is unlikely.
   - **Skin Exposure**: Prolonged contact is essentially nonirritating to skin. Repeated contact may cause flaking and softening of skin.
   - **Skin Absorption**: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
   - **Inhalation**: At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).
   - **Ingestion**: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

2. EFFECTS FROM CHRONIC EXPOSURE:
   - **Effects of Repeated Overexposure**: In rare cases, repeated excessive exposure to propylene glycol may cause nervous system effects.
   - **Other Effects of Overexposure**: No information currently available.

SECTION 6 TOXICOLOGICAL INFORMATION

**Acute Toxicity:**
- **Peroral**: Rat; female LD$_{50}$ = 20,300 mg/kg
- **Percutaneous**: Based on information for a similar material: Rabbit LD$_{50}$ ≥ 10,000 mg/kg

**Irritation:**
- **Skin**: Not a skin irritant. Repeated or prolonged contact with skin may cause dermatitis.
- **Eye**: May cause minor eye irritation. Effects of eye irritation are reversible.

**Sensitization**: Not expected to cause sensitization by skin contact, however skin reactions of unknown etiology have been described in some hypersensitive invidious following topical application.

**Target Organ Effects**: Skin. Repeated or prolonged contact with skin may cause defatting and drying of the skin which may result in dermatitis.

**Repeated Dose Toxicity**: No adverse systemic changes were reported in rats or dogs following repeated dietary exposure to high concentrations of propylene glycol. Cats responded with species-specific hematological changes (Heinz body formation) yet all other tissues were unaffected. No systemic effects, but mild eye and nasal irritation were noted in rats following sub-chronic exposure to high concentrations of propylene glycol. Overall Propylene glycol is of low inherent toxicity following repeated oral or inhalation exposure.

**Reproductive Toxicity**: Contains components which did not interfere with reproduction in animal studies. Contains component which did not interfere with fertility in animal studies. The component is: Propylene Glycol.

**Developmental Toxicity**: Contains components which did not cause birth defects or any other fetal effects in lab animals. The component is: Propylene Glycol.

**Chronic Toxicity and Carcinogenicity**: Similar formulations did not cause cancer in laboratory animals.

SECTION 7 ENVIRONMENTAL TOXICOLOGICAL INFORMATION

**Ecotoxicity**: This material is expected to be non-hazardous to aquatic species.

**Acute toxicity to fish**: LC$_{50}$ - 96 hr. fathead minnow - 51,400 mg/l  EC$_{50}$ - 96 hr. salmon - 51,600 mg/l

**Acute toxicity to aquatic invertebrates**: EC$_{50}$ - 48 hr. Daphnia magna - 43,500 mg/l  EC$_{50}$ - 48 hr. saltwater mysid - 27,300 mg/l

**Toxicity to aquatic plants**: EC$_{50}$ - 72 hr. Freshwater Algae- 24,200 mg/l EC$_{50}$ - 72 hr. Marine algae - 19,300 mg/l

**Chronic toxicity to aquatic invertebrates**: IC25 – waterflea – 13,470 mg/l

**Environmental Fate and Pathway**:
- **Mobility**: Transport between environmental compartments: environmental releases of propylene glycol will tend to partition to water and soil, with little potential for evaporation.
- **Degradability**: Readily biodegradable in aerobic conditions. There is evidence that it is degraded under anaerobic conditions.
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: KESCOFROST

SECTION 8  PHYSICAL/CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>216˚ F (TCC)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>323˚F</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.03</td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg.)</td>
<td>Not tested</td>
</tr>
<tr>
<td>Vapor Density (Air=1)</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>100%</td>
</tr>
<tr>
<td>pH</td>
<td>9 - 11</td>
</tr>
<tr>
<td>Appearance and Odor</td>
<td>Clear, colorless to pale yellow liquid; mild odor.</td>
</tr>
</tbody>
</table>

SECTION 9  FIRE AND EXPLOSION INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Limits</td>
<td>Lower 2.6 % (v) @ 212˚ F</td>
</tr>
<tr>
<td></td>
<td>Upper: 12.5% (v) @ 266˚F</td>
</tr>
<tr>
<td>Extinguishing Media</td>
<td>Apply alcohol-type or all-purpose foam for large fires. Use carbon dioxide or dry chemical media for small fires.</td>
</tr>
<tr>
<td>Special Fire Fighting Procedures</td>
<td>Use self-contained breathing apparatus and protective clothing.</td>
</tr>
</tbody>
</table>

SECTION 10  REACTIVITY INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable.</td>
</tr>
<tr>
<td>Incompatibility</td>
<td>Avoid strong acids and strong bases at elevated temperatures. Avoid strong oxidizing agents.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Burning can produce oxides of carbon. May form nitrogen compounds.</td>
</tr>
</tbody>
</table>

SECTION 11  HANDLING PRECAUTIONS

Avoid skin and eye contact. Rubber gloves, safety glasses or chemical splash goggles, body protective clothing such as long sleeve shirts and long trousers, and protective shoes are recommended.

Eye wash fountains in the work place are strongly recommended.

Good general room ventilation should be sufficient for most conditions.

SECTION 12  SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILL AND LEAK RESPONSE GUIDELINES

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product’s toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g., water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Bluegrass KESCO can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that cannot readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is
obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility’s industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES
Note: Follow the federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Bluegrass KESCO representative or Bluegrass KESCO (502) 969-4499.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13 TRANSPORTATION AND SHIPPING INFORMATION

DOT Shipping Name: Not a regulated hazardous material.

SECTION 14 REGULATORY INFORMATION

The following regulations are known to apply to the use and disposal of this product. Additional Federal, State, and Local regulation may also be applicable.

SARA (Superfund Amendments and Reauthorization Act):
SARA 302 Extremely Hazardous Substances List: To best of our knowledge this product does not contain chemicals at level which require reporting
SARA 312 Hazard Category…………………..: This material is not classified as a health and/or physical hazard.
SARA 313 Toxic Chemicals List………………..: No section 313 listed substances are present above de minimum levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act): No components of this product are listed.
RCRA (Resource Conservation and Recovery Act) Listed Hazardous Wastes: No components of this product are listed.
CWA (Clean Water Act) Listed Substances: No components of this product are listed.
FDA (Food and Drug Administration): This product is not approved for food contact uses.
TSCA (Toxic Substances Control Act) Applicability: All components are listed on TSCA Inventory.
FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act): This product is not a registered pesticide.

HMIS/NPCA Ratings: Health 0; Flammability 1; Reactivity 0
NFPA Ratings………: Health 0; Flammability 1; Reactivity 0

STATE REGULATIONS

PENNSYLVANIA Right-To-Know, Hazardous Substance List and Special Hazardous Substances on the List must be identified when present in products. Components present in this product at a level that could require reporting under the statute are: HAZARDOUS SUBSTANCES (≥ 1%)
CHEMICAL          CAS #  
1,2-Propanedial   57-55-6  

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Product Data Sheet is the responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazard Communication regulations.

Bluegrass KESCO, Inc. warrants that this product conforms to chemical description and is the reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law or no agent of seller is authorized to alter this warranty in any except in writing with specific reference to this warranty.

The exclusive remedy against seller shall be a claim for damages not exceed the purchase price of this product, without regard to whether such a claim based upon breach of warranty or tort.

Any controversy or claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the award rendered by the Arbitration(s) may be entered in any court having jurisdiction thereof.