**ETHYL CHLOROTHIOFORMATE**

**4. FIRE HAZARDS**

- **4.1 Flash Point**: 86°F C.C.
- **4.2 Flammable Limits in Air**: Currently not available
- **4.3 Fire Extinguishing Agents**: Dry chemical, alcohol foam, or carbon dioxide.
- **4.4 Fire Extinguishing Agents Not to Be Used**: Water may be ineffective.
- **4.5 Special Hazards of Combustion Products**: Irritating vapors and toxic gases, such as sulfur oxides, hydrogen chloride, carbon monoxide, and mercury, may be formed when involved in fire.
- **4.6 Behavior In Fire**: Vapors can flow along surfaces to distant ignition source and flash back.
- **4.7 Auto-Ignition Temperature**: Currently not available
- **4.8 Electrical Hazards**: Not listed
- **4.9 Burning Rate**: Not listed
- **4.10 Adiabatic Flame Temperature**: Currently not available
- **4.11 Stoichiometric Air to Fuel Ratio**: 21.4
- **4.12 Flame Temperature**: Currently not available
- **4.13 Combustion Molar Ratio (Reactant to Product)**: 7.0
- **4.14 Minimum Oxygen Concentration for Combustion (mOCC)**: Not listed

**5. CHEMICAL REACTIVITY**

- **5.1 Reactivity with Water**: No reaction.
- **5.2 Reactivity with Common Materials**: Currently not available
- **5.3 Stability During Transport**: Stable.
- **5.4 Neutralizing Agents for Acids and Caustics**: Not pertinent.
- **5.5 Polymerization**: Will not polymerize.
- **5.6 Inhibitor of Polymerization**: Not pertinent.

**6. WATER POLLUTION**

- **6.1 Aquatic Toxicity**: Currently not available
- **6.2 Water Bioconcentration**: Currently not available
- **6.3 Biological Oxygen Demand (BOD)**: Currently not available
- **6.4 Food Chain Concentration Potential**: Currently not available
- **6.5 GESAMP Hazard Profile**: Bioaccumulation: T
- **6.6 Damage to Living Resources**: Humans, aquatic life, and human contact hazard:
- **6.7 Reduction of Amenities**: -

**7. SHIPPING INFORMATION**

- **7.1 Grades of Purity**: Technical grade.
- **7.2 Storage Temperature**: Ambient.
- **7.3 Inert Atmosphere**: No requirement.
- **7.4 Venting**: Not listed.
- **7.5 IMO Pollution Category**: Currently not available
- **7.6 Ship Type**: Currently not available
- **7.7 Barge Hull Type**: Currently not available

**8. HAZARD CLASSIFICATIONS**

- **8.1 40 CFR Category**: Corrosive Material
- **8.2 40 CFR Class**: II
- **8.3 49 CFR Package Group**: II
- **8.4 Marine Pollutant**: Yes
- **8.5 NFPA Hazard Classification**: Not listed
- **8.6 EPA Reportable Quantity**: Not listed
- **8.7 EPA Pollution Category**: Not listed
- **8.8 RCRA Waste Number**: Not listed
- **8.9 EPA FWPCA List**: Not listed

**9. PHYSICAL & CHEMICAL PROPERTIES**

- **9.1 Physical State at 15°C and 1 atm**: Liquid
- **9.2 Molecular Weight**: 124.59
- **9.3 Boiling Point at 1 atm**: 269.6°F = 132°C = 450°F
- **9.4 Freezing Point**: Currently not available
- **9.5 Critical Temperature**: Currently not available
- **9.6 Critical Pressure**: Currently not available
- **9.7 Specific Gravity**: 1.195
- **9.8 Liquid Surface Tension**: Currently not available
- **9.9 Liquid Interfacial Tension**: Currently not available
- **9.10 Vapor (Gas) Specific Gravity**: Currently not available
- **9.11 Ratio of Specific Heats of Vapor (Gas)**: Currently not available
- **9.12 Latent Heat of Vaporization**: Currently not available
- **9.13 Heat of Combustion**: Currently not available
- **9.14 Heat of Decomposition**: Currently not available
- **9.15 Heat of Solution**: Currently not available
- **9.16 Heat of Polymerization**: Not pertinent
- **9.17 Heat of Fusion**: Currently not available
- **9.18 Limiting Value**: Currently not available
- **9.19 Reid Vapor Pressure**: Currently not available

**NOTES**

JUNE 1999
## 9.20 SATURATED LIQUID DENSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENTLY NOT AVAILABLE</td>
<td>CURRENTLY NOT AVAILABLE</td>
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</table>

## 9.21 LIQUID HEAT CAPACITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENTLY NOT AVAILABLE</td>
<td>CURRENTLY NOT AVAILABLE</td>
</tr>
</tbody>
</table>

## 9.22 LIQUID THERMAL CONDUCTIVITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit inch per hour-square foot-F</th>
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<tbody>
<tr>
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<td>CURRENTLY NOT AVAILABLE</td>
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</table>

## 9.23 LIQUID VISCOSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Centipoise</th>
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<tbody>
<tr>
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<td>CURRENTLY NOT AVAILABLE</td>
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</table>

## 9.24 SOLUBILITY IN WATER

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per 100 pounds of water</th>
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</thead>
<tbody>
<tr>
<td>CURRENTLY NOT AVAILABLE</td>
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</table>

## 9.25 SATURATED VAPOR PRESSURE

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per square inch</th>
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</thead>
<tbody>
<tr>
<td>73</td>
<td>0.251</td>
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<tr>
<td>158</td>
<td>1.741</td>
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</tbody>
</table>

## 9.26 SATURATED VAPOR DENSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
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<tr>
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<td>0.00548</td>
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<td>158</td>
<td>0.03270</td>
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## 9.27 IDEAL GAS HEAT CAPACITY

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<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
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<tbody>
<tr>
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<td>CURRENTLY NOT AVAILABLE</td>
</tr>
</tbody>
</table>

JUNE 1999