4. FIRE HAZARDS
4.1 Flash Point: 32°F C.C.
4.2 Flammable Limits in Air: 4.3%-21%
4.3 Fire Extinguishing Agents: Small fires: Dry chemical, CO₂, water spray or alcohol foam. Large fires: Water spray, fog or alcohol foam.
4.4 Fire Extinguishing Agents Not to Be Used: None.
4.5 Special Hazards of Combustion Products: Toxic nitrogen oxides may be formed.
4.6 Behavior in Fire: Vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback. When heated to decomposition, it emits toxic fumes of NOx.
4.7 Auto Ignition Temperature: 806°F
4.8 Electrical Hazards: Currently not available.
4.9 Burning Rate: Not pertinent.
4.10 Adiabatic Flame Temperature: Currently not available.
4.11 Stoichiometric Air to Fuel Ratio: 15.5 (calc.)
4.12 Flame Temperature: Currently not available.
4.13 Combustion Molar Ratio (Reactant to Product): 4.5 (calc.)

5. CHEMICAL REACTIVITY
5.1 Reactivity with Water: Dissolves completely.
5.2 Reactivity with Common Materials: Corrosive to copper, zinc alloys, aluminum and galvanized surfaces. Contact with mercury can produce explosive reaction.
5.3 Stability During Transport: Stable.
5.4 Neutralizing Agents for Acids and Caustics: Mild acid solution such as vinegar or 1-2% acetic acid.
5.5 Polymerization: Not pertinent.
5.6 Inhibitor of Polymerization: Not pertinent.

6. WATER POLLUTION
6.1 Aquatic Toxicity: 10-30 ppm/24 hrcwork chub.
6.2 Waterfowl Toxicity: Currently not available.
6.3 Biological Oxygen Demand (BOD): 67.8% in 13 days.
6.4 Food Chain Concentration Potential: Not pertinent.
6.5 GESAMP Hazard Profile: Bioaccumulation: 0; Damage to living resources: 2; Human Oral hazard: 2; Human Contact hazard: II;
Reduction of amenities: XXX

7. SHIPPING INFORMATION
7.1 Grades of Purity: Anhydrous 99.3+%; water solutions 30-50% by weight.
7.2 Storage Temperature: Ambient.
7.3 Inert Atmosphere: Not required.
7.4 Venting: Safety relief.
7.5 IMO Pollution Category: C.
7.6 Ship Type: 2.
7.7 Barge Hull Type: 2.

8. HAZARD CLASSIFICATIONS
8.2 49 CFR Class: 3.
8.3 49 CFR Package Group: II.
8.4 Marine Pollution: No.
8.5 NFPA Hazard Classification: Category Classification Health Hazard (Blue)........ 3
     Flammability (Red)........ 4
     Instability (Yellow).......... 0

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: 31.06.
9.3 Boiling Point at atm: 20.66°F = -6.3°C = 266.7K.
9.4 Freezing Point: -134.5°F = -92.5°C = 185.8K.
9.5 Critical Temperature: 314.4°F = 156.9°C = 430.1K.
9.6 Critical Pressure: 590 psia = 40.2 atm = 4.07 Mpa.
9.7 Specific Gravity: 0.693 at -6.5°C.
9.8 Liquid Surface Tension: 29.2 dynes/cm at -20°C.
9.9 Liquid Water Interfacial Tension: Currently not available.
9.10 Vapor (Gas) Specific Gravity: 1.1.
9.11 Ratio of Specific Heats of Vapor (Gas): 1.1946.
9.13 Heat of Combustion: -15,000 Btu/lb = -6,830 cal/g = -34.9 X 10³ J/kg.
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 Values: Currently not available.
9.19 Reid Vapor Pressure: Currently not available.

NOTES

3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first degree burns on short exposure and may cause second degree burns on long exposure.
3.12 Odor Threshold: 0.021 ppm.
3.13 DLH Value: 100 ppm.
3.14 OSHA PEL-TWA: 10 ppm.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEL: Not listed.
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JUNE 1999