Material Safety Data Sheet

SECTION 1: Chemical Product and Company Identification

Manufacturer: Cumberland Swan
Drive
Smyrna, TN 37167

Product: Isopropyl Alcohol (IPA)

Date: March 2000

One Swan

Telephone: (615) 459-8900
24 hr Emergency: (615) 459-8900 ext. 5270

50%, 70%, 91% and 99% IPA

SECTION 2: Composition/Information on Ingredients

Name: Isopropanol, IPA, 2-Propanol, Dimethyl Carbinol
CAS#: 67-63-0

SECTION 3: Hazards Identification

Colorless, volatile liquid with the odor of rubbing alcohol. Isopropyl Alcohol is a dangerous fire risk. Prolonged exposure to elevated concentrations of vapors may result in irritation of the eyes, nose, and throat and central nervous system (CNS) depression. Prolonged dermal exposure can result in dry, cracking skin.

Potential Routes of Exposure: Ingestion, inhalation, dermal contact, eye contact

Target Organs: Eyes, skin, respiratory system

Symptoms of Overexposure:
- Inhalation: Mild irritation of eyes, nose and throat,
- Ingestion: Drowsiness, headache
- Dermal Contact: Dry, cracking skin
- Acute Effects: Irritation of skin and/or upper respiratory tract as noted above.
- Acute CNS depression may be manifested as giddiness, headache, dizziness and/or nausea.
- Chronic Effects: Chronic exposure can result in skin irritation and contact dermatitis. Pre-existing disorders of the skin, eyes, and respiratory tract may be exacerbated by exposure to isopropyl alcohol.

HMIS: H=1, F=3, R=0
See Section 8 for PPE information

SECTION 4: First Aid Measures

Eye: Flush eyes with copious amount of water for at least 15 minutes
Skin: Flush with water. If irritation persists, seek medical attention.
Ingestion: Do not induce vomiting if victim is unconscious or drowsy. Seek medical attention or contact the poison control center.
Inhalation: Remove victim to fresh air and provided oxygen if breathing is difficult. Seek Medical attention if breathing continues to be difficult.

SECTION 5: Fire Fighting Measures

Extinguishing Media: Use water fog, alcohol foam, dry chemical or CO2. Containers exposed to intense heat from fires should be cooled with large amounts of water to prevent buildup of internal pressure due to vapor generation which could result in container rupture.

Unusual Fire or Explosion Hazards: Clear area of unprotected personnel. Wear complete turnout gear. Cool containers exposed to fire with water,
SECTION 6: Accidental Release Measures

Large Spills: Eliminate all ignition sources. Equipment must be grounded to prevent sparking. Evacuate the area of unprotected personnel. Contain source of spill. Dike or otherwise confine spilled product. Uncontrolled releases to air, land, or water may be reportable to the National Response Center (1-800-424-8802).

Small Spills: Take up with absorbent material and place in non-leaking container; seal tightly. Dispose of absorbent (see section 13)

SECTION 7: Handling and Storage

Storage Requirements: Store in tightly closed containers in a cool, dry area away from heat and other possible ignition sources.

Handling precautions: Use non-sparking tools to open containers. Maintain appropriate class of fire extinguishers nearby in case of fire.

SECTION 8: Exposure Controls / Personal Protection

OSHA PEL = 400 ppm  OSHA STEL = 500 ppm  IDLH = 12,000 ppm

Recommended Engineering Controls: Use explosion-proof ventilation equipment as necessary to maintain airborne concentrations below the PEL. Ground containers to prevent static sparks during fluid transfers.

Recommended Admin Controls: Train employees on the hazards of Isopropyl Alcohol

PPE: Goggles, gloves, NIOSH approved respiratory protection required when above PEL/TWA

Recommended Hygiene Practices: Clean PPE and work clothing contaminated prior to reuse. After working with this product, be sure to wash before eating, smoking, drinking, or applying cosmetics.

SECTION 9: Physical and Chemical Properties

Appearance: Colorless Liquid  UEL: 12%  LEL: 2%
Odor: Mild Rubbing Alcohol  Odor Threshold: 43ppm Water solubility: Miscible

<table>
<thead>
<tr>
<th>50%IPA</th>
<th>70%IPA</th>
<th>91%IPA</th>
<th>99%IPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Pressure (@ 68°F) approx.</td>
<td>29mm</td>
<td>23mm</td>
<td>33mm</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>.929</td>
<td>.878</td>
<td>.790</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>176°F</td>
<td>176°F</td>
<td>180°F</td>
</tr>
<tr>
<td>Flash Point (TAG Open Cup)</td>
<td>74.5°F</td>
<td>70.5°F</td>
<td>54°F</td>
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<tr>
<td>Freezing Point</td>
<td>32-50° C</td>
<td>32-50° C</td>
<td>32 50° C</td>
</tr>
<tr>
<td>Molecular Weight</td>
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<td>47.5</td>
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<tr>
<td>Auto Ignition Temperature</td>
<td>No Data</td>
<td>No Data</td>
<td>No Data</td>
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</tbody>
</table>

SECTION 10: Stability and Reactivity

Stability: Stable
Polymerization: Will not occur
Incompatible Chem: Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids, isocyanates
Conditions to avoid: Heat, sparks, and open flame.
Do Not store in aluminum > 120 °F

Hazardous Products: CO and unidentified organic compounds may be formed of Decomposition

SECTION 11: Toxicological Information

LD50: 5,840 mg/kg (acute oral - rat); 13,000 mg/kg (acute dermal - rabbit)
LD50: 16,000 ppm/8hr (inhalation - rat) Mutagenicity: Not Indicated
LDix: 5,000 mg/kg (oral -rabbit) Reproductive Effects: Not Indicated
Carcinogenicity: Not identified as a carcinogen by OSHO, IARC, or NTP

SECTION 12: Ecological Information

Ecotoxicity: N/A  Environmental Fate: N/A
Soil Absorption/Mobility: Highly Mobile
Environmental Degradation: Should be removed readily from soils and water by volatilization and biodegradation.
SECTION 13 Disposal Considerations
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Disposal Regulatory Requirements: Follow applicable Federal, state, and local regulations. Consider fuels blending as an alternative to incineration.

SECTION 14: Transport Information
DOT Shipping Name: Isopropanol
DOT Packing Group: 11
DOT Hazard Class: 3
DOT Label: Flammable Liquid
UN ID#: UN 1219

SECTION 15: Regulator, Information
RCRA Hazardous Waste Number/ Classification: D001 CERCLA Substance: N/A
HAZARDOUS AIR POLLUTANT (CAA): No SARA 311/312 Codes: N/A
SARA Toxic Chemical: Yes, (Strong manufacturing only)
CERCLA Reportable Quantity: 10,000 lbs (Default)

SECTION 16: Other Information
Prepared by: Cumberland Swan
Disclaimer: While reasonable care has been taken to ensure the accuracy and completeness of the information regarding the material described herein, it is the purchaser's responsibility to ensure the suitability of such information as it applies to the purchaser's intended use of the material.