# ASTRO PRODUCT CODE # 10003
## MATERIAL SAFETY DATA SHEET

**ISOPROPYL ALCOHOL (99%)**

**ARCO Chemical Company**
3801 West Chester Pike
Newtown Square
PA 19073 USA

**MBDS No**: P000002-1-OSHA-AE
**MSDS CLASS**: H
**Ver. No**: 1
**Ver. Date**: NOV 3 93

**IMPORTANT**: Read this MSDS before handling and disposing of this product and pass this information on to the employees, customers, and users of this product. This product is covered by the OSHA Hazard Communication Rule and this document has been prepared in accord with the MSDS requirements of this rule.

### 1. General

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>ISOPROPYL ALCOHOL (99%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Company Names</td>
<td>None</td>
</tr>
<tr>
<td>Synonym</td>
<td>None</td>
</tr>
<tr>
<td>Other Industry Names</td>
<td>IPA; isopropanol; Dimethyl Carbonate</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>C3 Alcohol</td>
</tr>
<tr>
<td>DOT Hazardous Materials</td>
<td>Proper Shipping Name: isopropanol</td>
</tr>
<tr>
<td>Generic Name</td>
<td>2-Propanol</td>
</tr>
<tr>
<td>DOT Hazard Class</td>
<td>3 (flammable liquid)</td>
</tr>
<tr>
<td>DOT Reportable Quantity</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>CAS No.</td>
<td>(See Section 9 - Components)</td>
</tr>
<tr>
<td>ACC Material ID</td>
<td>BE104</td>
</tr>
<tr>
<td>UN/NA ID No.</td>
<td>UN 1219</td>
</tr>
</tbody>
</table>

### 2. Summary of Hazards

**Signal Word**: DANGER

**Physical Hazards**: Extremely flammable liquid

**Acute Health Effects** (Short-Term)
- Slight inhalation hazard
- Severe eye irritant
- Slight ingestion hazard
- No skin irritation hazard identified from data available
- No skin absorption hazard identified from data available

**Chronic Health Effects** (Long-Term)
- Repeated or prolonged exposure to isopropanol can be irritating to mucosal membranes

### 3. Fire and Explosion

<table>
<thead>
<tr>
<th>Flash Point</th>
<th>Autovgination Temperature</th>
<th>Flammable Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP 53 °F (TCC)</td>
<td>AP 750 °F</td>
<td>(at Normal Atmospheric Temp and Pressure)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower: AP 2 (% vol in air)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper: AP 12.7 (% vol in air)</td>
</tr>
</tbody>
</table>

**Fire and Explosion Hazards**: Releases flammable vapors below normal ambient temperatures. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Diluting with water may not suffice to raise flash point above ambient temperatures.

**Extinguishing Media**: Alcohol type foam
- CO₂
- Dry chemical
- Water spray
- Water fog

**Extinguishing Media Use Comment**: No additional information available

**Special Firefighting Procedures**: Do not enter fire area without proper protection. Fight fire from a safe distance/protected location. Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Water may be ineffective in firefighting due to low flash point. Use water spray/fog for cooling. Avoid frothing/steam explosion. Burning liquid may float on water. Although water soluble, may not be practical to extinguish fire by water dilution. Notify authorities immediately if liquid enters sewer/public waters.
4. Health Hazards

Summary of Acute Hazards:
Moderate health hazard

Route of Exposure:

<table>
<thead>
<tr>
<th>Exposure Route</th>
<th>Signs and Symptoms</th>
<th>Primary Route(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Prolonged overexposure may cause coughing, shortness of breath, dizziness and intoxication.</td>
<td>Yes</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>May cause severe eye irritation.</td>
<td>Yes</td>
</tr>
<tr>
<td>Skin Absorption</td>
<td>No significant signs or symptoms indicative of any health hazard are expected to occur as a result of skin absorption exposure.</td>
<td>No</td>
</tr>
<tr>
<td>Skin Irritation</td>
<td>No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure.</td>
<td>No</td>
</tr>
<tr>
<td>Ingestion</td>
<td>This material may be a slight health hazard if ingested in large quantities.</td>
<td>No</td>
</tr>
</tbody>
</table>

Summary of Chronic Hazards:
Repeated or prolonged exposure may irritate the mucous membranes. See additional text information elsewhere in this document.

Special Health Effects:
This material or its emissions may affect mucous tissue and/or aggravate mucous membrane dysfunction.

5. Protective Equipment and Other Control Measures

Respiratory:
If exposure exceeds the PEL/TLV, use NIOSH/MSHA approved respiratory equipment as specified in the NIOSH/OSHA 1981 Occupational Health Guidelines for Chemical Hazards.

Eye:
Eye protection including both chemical splash goggles and face shield must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor. Contact lenses must not be worn.

Skin:
Not normally considered a skin hazard. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, and when leaving work.

Engineering Controls:
No special ventilation is recommended under anticipated conditions of normal use beyond that needed for normal comfort control.

Other Hygienic Practices:
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Other Work Practices:
Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

6. Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Substance</th>
<th>Source</th>
<th>Date</th>
<th>Type</th>
<th>Value/Units</th>
<th>Time</th>
<th>Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>ACGIH</td>
<td>1992</td>
<td>TWA</td>
<td>400 PPM</td>
<td>8 HRS</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>OSHA</td>
<td>1989</td>
<td>TWA</td>
<td>400 PPM</td>
<td>8 HRS</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL</td>
<td>500 PPM</td>
<td>15 MIN</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL</td>
<td>500 PPM</td>
<td>15 MIN</td>
<td>No</td>
</tr>
</tbody>
</table>

Industrial Hygiene Comments:
No additional Occupational Exposure Limit information available.

7. Emergency and First Aid

Inhalation:
If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

Eye Contact:
In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.

Skin Contact:
Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first.

Ingestion:
If large quantity swallowed, give lukewarm water (1/2 litre/pint) if victim completely conscious/alert. DO NOT INDUCE VOMITING. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

Emergency Medical Treatment Procedures:
If pain, blinking, tears, or redness continue, patient should contact ophthalmologist.

Detoxification Procedures:
Treat symptomatically.
8. Spill and Disposal

Precautions if Material is Spilled or Released

Waste Disposal Methods

9. Components

(This may not be a complete list of components.)

(Compositions are typical values, not specifications.)

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS No.</th>
<th>Composition Amount (Wt%)</th>
<th>Carcinogen ###</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
<td>AP 99 %</td>
<td>N/P</td>
</tr>
</tbody>
</table>

#1 = National Toxicology Program  2 = International Agency for Research on Cancer  3 = Occupational Health and Safety Administration  4 = Other

10. Component Health Hazards

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Component Health Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>Damages developing fetus, Severe eye irritant, Mucous membrane irritant</td>
</tr>
</tbody>
</table>

11. Additional Toxicological Information

Component Name/Comments

Isopropyl Alcohol

Isopropyl Alcohol

Isopropyl alcohol, when given to pregnant rats has been reported in one study to be toxic to the developing fetus at levels of 2.5% in drinking water. No teratogenic effects were, or have been, reported. There are no reports of adverse reproductive effects in humans exposed to this chemical.

Material

No additional toxicology information is available for this material

12. Physical and Chemical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>AP 180 °F</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>AP -127 °F</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>AP .78 at 68 °F (H2O = 1.0 at 39.2 °F)</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Viscosity | No Data Available
Vapor Pressure | AP 33 MM HG (at 68° F)
Vapor Specific Gravity | AP 2.1 (Air = 1.0 at 60-90° F)
Hazardous Polymerization | Not expected to occur
Stability | Stable

No additional information available

No additional information available
### 12. Physical and Chemical Data (Cont'd)

<table>
<thead>
<tr>
<th>Appearance and Odor</th>
<th>Liquid; medicinal odor analogous to rubbing alcohol. Odor threshold: AP 200 PPM; Clear, colorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions to Avoid</td>
<td>Heat, sparks, open flame, other ignition sources, and oxidizing conditions</td>
</tr>
<tr>
<td>Materials to Avoid</td>
<td>Aluminum metals, Nitroform, Strong oxidizing agents, Sulfuric acid</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Incomplete combustion may produce carbon monoxide and other toxic gases</td>
</tr>
</tbody>
</table>

### 13. Hazards Rating Information

National Fire Protection Association  
Health = 1  
Flammability = 3  
Reactivity = 0  

National Paint and Coatings Association  

Hazardous Materials Information System (HMIS)  
Health = 1  
Flammability = 3  
Reactivity = 0  
Personal Protection = X

### 14. Additional Precautions

**Handling and Storage Procedures**  
Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Use only non-sparking tools.  
Store closed drums with bung in up position. Carefully vent any internal pressure before removing closure. Containers must be properly grounded before beginning transfer. All equipment must conform to applicable electrical code. Handle empty containers with care; vapor residue may be flammable/explosive. Material may attack some forms of plastic, aluminum, rubber and coatings.

**Decontamination Procedures**  
Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Remove all ignition sources. Check atmosphere for explosiveness and oxygen deficiencies. Wear recommended personal protective equipment. Observe precautions pertaining to confined space entry.
15. Regulatory Information

FEDERAL:

Toxic Substance Control Act (TSCA)
The following is the TSCA Chemical Substance Inventory Status of the components of this material with CAS numbers listed in Section 9 - Components:

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>CAS NO.</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
<td>Listed - Non Confidential</td>
</tr>
</tbody>
</table>

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III
- Section 302/304

Requires emergency planning based on 'Threshold Planning Quantities' (TPQs), and release reporting based on Reportable Quantities (RQs) of "Extremely Hazardous Substances" (EHS) listed in Appendix A of 40 CFR 355. There are no components of this material with known CAS numbers which are on the EHS list.

- Section 311 & 312
Based upon available information, this material and/or components are classified as the following health and/or physical hazards according to Section 311 & 312:
- Immediate (Acute) Health Hazard
- Fire Hazard

- Section 313

The material does not contain any chemical components with known CAS numbers that exceed the De Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

OSHA Regulations
'Chemical-specific' OSHA regulations (1910.1002 to 1910.1050) presented under 29 CFR 1910 do not apply to this material or its components.

Other EPA Regulations
No additional information available.

Department of Transportation (DOT)
Other than the normal shipping instructions and information given in this MSDS, there are no other specific DOT regulations governing the shipment of this material.

STATE REGULATIONS:

California Safe Drinking Water and Toxic Enforcement Act of 1988 - Proposition 65

This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

California South Coast Air Quality Management District (SCAQMD) Rule 443.1 (VOC's)
A Volatile Organic Compound (VOC) is any volatile compound of carbon excluding methane, carbon monoxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, 1,1,1-trichloroethane, methylene chloride, (FC-23), (CFC-113), (CFC-12), (CFC-11), (CFC-22), (CFC-114), and (CFC-115). By this definition, this is a VOC material.
## 15. Regulatory Information (Cont'd)

### Massachusetts Right-to-Know Substance List (MSL) [105 CMR670.000]

Hazardous Substances (MSL-HS) on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is \( \geq 1\% \). Components with CAS numbers present in this material at a level which could require reporting under the statute are:

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
</tr>
</tbody>
</table>

Extraordinarily Hazardous Substances (MSL-EHS) on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is \( \geq 0.001\% \). Components with CAS numbers present in this material at levels specified in Section 9 - Components, do not require reporting under the statute.

### New Jersey Registration

The New Jersey Registry 3, Registration law does not apply to this material, as none of its components are trade secrets.

### Pennsylvania Right-to-Know Hazardous Substances List

Environmental Hazards (PA-EH) must be identified when present in materials at levels greater than the state specified criterion. The criterion is \( \geq 0.01\% \). Components with CAS numbers in this material at a level which could require reporting under the statute are:

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
</tr>
</tbody>
</table>

Hazardous Substances (PA-HS) must be identified when present in materials at levels greater than the state specified criterion. The criterion is \( \geq 1\% \). Components with CAS numbers in this material at a level which could require reporting under the statute are:

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol</td>
<td>67-63-0</td>
</tr>
</tbody>
</table>

Special Hazardous Substances (PA-SHS) must be identified when present in materials at levels greater than the state specified criterion. The criterion is \( \geq 0.01\% \). Components with CAS numbers present in this material, at levels specified in Section 9 - Components, do not require reporting under the statute.

### Regulatory Advisory

If you reformulate or further process this material, you should consider re-evaluation of the regulatory status of the components listed in Section 9, based on the final composition of your product.
## ASTRO PRODUCT CODE # 10003

### ISOPROPYL ALCOHOL (99%)

**Telephone Numbers:**
- **EMERGENCY:** 800/434-3300
- **CHEMTREC:** 800/354-3544
- **ARCO CHEM CUSTOMER SERVICE:** 800/231-7000
- **INFO ONLY**

**Signal Word:** DANGER

### 18. Label Information

**Manufacturer:**
- ARCO Chemical Company
  - 3501 West Chester Pike
  - Newtown Square
  - PA 19073 USA

**Other Company Names:** None

**Use Statement:** For industrial use only. Keep out of reach of children

**Physical Hazards:**
- Extremely flammable
- Health Hazards:
  - Severe eye irritant
  - Inhalation hazard
  - Ingestion hazard
- Prolonged exposure may affect mucous membranes

**Precautionary Measures:**
- Do not handle near heat, sparks, or open flame
- Do not store near combustible materials
- Avoid contact with eyes
- Avoid prolonged or repeated breathing of gases, vapors, or mists
- Use with adequate ventilation
- Prevent contact with food, chewing, or smoking materials
- Do not take internally
- Keep container tightly closed when not in use
- Do not store this material in aluminum containers

**DOT Information:**
- **UN/NA ID No.:** UN 1219
- **DOT Hazard Class:** 3 (flammable liquid)
- **DOT Hazard Class:** 3 (flammable liquid)
- **DOT Reportable Quantity:** Not Applicable
- **DOT Hazardous Materials Proper Shipping Name:** Isopropanol

**Component Name:**
- Isopropanol

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Composition Amount (Vol.)</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-63-0</td>
<td>AP 99 %</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**Instructions:**
- In case of fire, use: Alcohol type foam, CO2. Dry chemical. Water spray. Water fog
- First Aid: Inhalation
  - If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
- Eye Contact
  - In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.
- Skin Contact
  - Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first.
- Ingestion
  - If large quantity swallowed, give lukewarm water (1/2 lb/nin) if victim completely conscious/sense. DO NOT INDUCE VOMITING. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

**In case of spill:**
- Extremely flammable liquid. Release causes immediate fire/explosion hazard. Extinguish all ignition sources. Impound/recover large land spill; soak up small spill with inert solids. On water, may biodegrade. Contain/collect rapidly to minimize dispersion. Report per regulatory requirements.

**Protective Equipment:**
- Respiratory
  - Use only NIOSH/MSHA approved respiratory protection equipment per 1981 NIOSH/OSHA Guidelines for Chemical Hazards.
- Eye
  - Chemical splash goggles and/or face shield should be worn.
- Skin
  - No special clothing normally required. Where use can result in skin contact, wash thoroughly before eating, drinking, smoking, or leaving work.

**Label No.:** LP000002
**Version No.:** 1
**Date:** SEP 1 1995
**17. General Comments**

**General Comments**
No additional information available.

**Other Comments**
Some of the information presented and conclusions drawn herein are from sources other than direct test data on the material itself.

<table>
<thead>
<tr>
<th>Note</th>
<th>Qualifications:</th>
<th>AP=Approximately</th>
<th>N/P=No applicable information found</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ=Equal</td>
<td>LT=Less Than</td>
<td>UK=Unknown</td>
<td>N/AP=Not applicable</td>
</tr>
<tr>
<td>GT=Greater Than</td>
<td>TR=Trace</td>
<td></td>
<td>N/DA=No Data Available</td>
</tr>
</tbody>
</table>

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This MSDS was prepared and is to be used only for this product.
If the product is used as a component in another product, this MSDS information may not be applicable.

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**Print Date**

8 February 1995