### SECTION 1: Identification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURER/DISTRIBUTOR</td>
<td>Rainbow Technology Corporation (800)637-6047</td>
</tr>
<tr>
<td>CONTACT PERSON</td>
<td>Larry Joe Steeley, Jr.</td>
</tr>
<tr>
<td>EMERGENCY PHONE (24 HRS.)</td>
<td>Chem-Tel Inc. (800) 255-3924</td>
</tr>
<tr>
<td>TRADE NAME/SYNONYMS</td>
<td>Rainbow Fiber Optic Wipe</td>
</tr>
<tr>
<td>PRODUCT NUMBER</td>
<td>4002</td>
</tr>
<tr>
<td>CHEMICAL NAME</td>
<td>Isopropyl Alcohol</td>
</tr>
<tr>
<td>CHEMICAL FAMILY</td>
<td>Alcohol</td>
</tr>
<tr>
<td>FORMULA</td>
<td>(CH7) 2CHOH</td>
</tr>
<tr>
<td>ISSUE DATE</td>
<td>Nov 24, 2015</td>
</tr>
<tr>
<td>REPLACES SDS DATED</td>
<td>May 8, 2015</td>
</tr>
</tbody>
</table>

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

- **GHS-US classification**
  - Flam. Liq. 2   H225 - Highly flammable liquid and vapor
  - Eye Irrit. 2A  H319 - Causes serious eye irritation
  - STOT SE 3      H336 - May cause drowsiness or dizziness

The full text of H-phrases: see section 16

#### 2.2. Label elements

**GHS-US labeling**

- **Hazard pictograms (GHS-US)**:![GHS02](image) ![GHS07](image)

- **Signal word (GHS-US)**: Danger
- **Hazard statements (GHS-US)**: H225 - Highly flammable liquid and vapor
  - H319 - Causes serious eye irritation
  - H336 - May cause drowsiness or dizziness
- **Precautionary statements (GHS-US)**:
  - P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
  - P233 - Keep container tightly closed
  - P240 - Ground/bond container and receiving equipment
  - P241 - Use explosion-proof electrical, lighting, ventilating equipment
  - P242 - Use only non-sparking tools
  - P243 - Take precautionary measures against static discharge
  - P261 - Avoid breathing dust, fume, gas, mist, spray, vapors
2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl Alcohol 99%</td>
<td>(CAS No) 67-63-0</td>
<td>100</td>
<td>Flam. Liq. 2, H225</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H336</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures


First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact: Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.

First-aid measures after eye contact: Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.


4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries: May cause drowsiness or dizziness.


Symptoms/injuries after skin contact: Dry skin.

Symptoms/injuries after eye contact: Irritation of the eye tissue.


4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Unsuitable extinguishing media: Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture
Fire hazard: DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard.
Explosion hazard: DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".
Reactivity: Upon combustion: CO and CO2 are formed. Violent to explosive reaction with (strong) oxidizers. Prolonged storage/in large quantities: may form peroxides.

5.3. Advice for firefighters
Firefighting instructions: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8 Exposure controls/personal protection".

6.2. Environmental precautions
Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up
For containment: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
Methods for cleaning up: Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Damaged/coolied tanks must be emptied. Do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 8 : Exposure-controls/personal protection".
SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Ground/bond container and receiving equipment.

Storage conditions: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.

Prohibitions on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. amines. halogens.

Storage area: Store in a cool area. Store in a dry area. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. May be stored under nitrogen. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: closing. with pressure relief valve. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.


SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Isopropyl Alcohol 99% (67-63-0)</th>
<th>ACGIH TWA (ppm)</th>
<th>200 ppm (2-propanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>400 ppm (2-propanol; USA; Short time value; TLV - Adopted Value)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Ensure good ventilation of the work station.


Hand protection: Gloves.

Eye protection: Safety glasses.

Skin and body protection: Protective clothing.

Respiratory protection: Wear gas mask with filter type A if conc. in air > exposure limit.

Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol odour Stuffy odour Mild odour</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>3 - 610 ppm</td>
</tr>
<tr>
<td></td>
<td>8 - 1499 mg/m³</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>-88 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>82 °C (1013 hPa)</td>
</tr>
</tbody>
</table>
Critical temperature: 235 °C
Critical pressure: 47600 hPa
Flash point: 12 °C
Relative evaporation rate (butyl acetate=1): 2.3
Relative evaporation rate (ether=1): 21
Flammability (solid, gas): No data available
Explosion limits:
- 2 - 13 vol %
- 50 - 335 g/m³
Explosive properties: No data available
Oxidizing properties: No data available
Vapor pressure:
- 44 hPa (20 °C)
Vapor pressure at 50 °C: 60.2 hPa (25 °C)
Relative density: 0.79
Relative vapor density at 20 °C: 2.1
Relative density of saturated gas/air mixture: 1.05
Specific gravity / density: 785 kg/m³
Molecular mass: 60.10 g/mol
Solubility:
- Soluble in water.
- Soluble in ethanol.
- Soluble in ether.
- Soluble in acetone.
- Soluble in oils/fats.
- Soluble in chloroform.
Log Pow: 0.05 (Weight of evidence approach; Other; 25 °C)
Auto-ignition temperature: 399 °C
Decomposition temperature: No data available
Viscosity:
- Viscosity, kinematic: 2.5316 mm²/s (25 °C)
- Viscosity, dynamic: 0.0020 Pa.s (25 °C)
Minimum ignition energy: 0.65 mJ
Specific conductivity: 5.8 µS/m
Saturation concentration: 106 g/m³
VOC content: 100 %
Other properties: Gas/vapour heavier than air at 20°C. Clear. Volatile.

SECTION 10: Stability and reactivity

10.1. Reactivity
Upon combustion: CO and CO2 are formed. Violent to explosive reaction with (strong) oxidizers. Prolonged storage/in large quantities: may form peroxides.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, No sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects
### Isopropyl Alcohol 99% (67-63-0)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 dermal rabbit</td>
<td>12870 mg/kg (Rabbit; Experimental value; Equivalent or similar to OECD 402: 16.4; Rabbit)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>73 mg/l/4h (Rat)</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>12870.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>73.000 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>73.000 mg/l/4h</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>IARC group</td>
<td>3 - Not Classifiable</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>May cause drowsiness or dizziness.</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Dry skin.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Irritation of the eye tissue.</td>
</tr>
</tbody>
</table>

### Ecology - general
Not classified as dangerous for the environment according to the criteria of Directive 67/548/EEC. Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

### Ecology - air

### Ecology - water
Ground water pollutant. Not harmful to fishes (LC50(96h) >1000 mg/l). Not harmful to invertebrates (Daphnia). Not harmful to algae (EC50 (72h) >1000 mg/l). Inhibition of activated sludge.

### Isopropyl Alcohol 99% (67-63-0)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 2</td>
<td>9640 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>13299 mg/l (EC50; Other; 48 h; Daphnia magna)</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
<td>&gt; 1000 mg/l (EC50; UBA; 72 h; Scenedesmus subspicatus)</td>
</tr>
</tbody>
</table>

### Persistence and degradability

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>1.19 g C/kg substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>2.23 g C/kg substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>2.40 g C/kg substance</td>
</tr>
</tbody>
</table>
12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Isopropyl Alcohol 99% (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Isopropyl Alcohol 99% (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface tension</td>
</tr>
</tbody>
</table>

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Do not discharge into surface water. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.

Additional information: LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

Transport document description: UN1219 Isopropanol, 3, II
UN-No.(DOT): UN1219
Proper Shipping Name (DOT): Isopropanol
Transport hazard class(es) (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT): 3 - Flammable liquid

Packing group (DOT): II - Medium Danger
DOT Packaging Non Bulk (49 CFR 173.xxx): 202
DOT Packaging Bulk (49 CFR 173.xxx): 242
DOT Special Provisions (49 CFR 172.102): IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 °C (1.1 bar at 122 °F), or 130 kPa at 55 °C (1.3 bar at 131 °F) are authorized. T4 - 2.65 178.274(d)(2) Normal............. 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx): 4b;150
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 60 L
DOT Vessel Stowage Location: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
other information: No supplementary information available.

TDG:
No additional information available.

Transport by sea:
- UN-No. (IMDG): 1219
- Class (IMDG): 3 - Flammable liquids
- EmS-No. (1): F-E
- EmS-No. (2): S-D

Air transport:
- UN-No. (IATA): 1219
- Class (IATA): 3 - Flammable Liquids
- Packing group (IATA): II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
- Isopropyl Alcohol 99% (67-63-0)
  Listed on the United States TSCA (Toxic Substances Control Act) inventory
  Listed on SARA Section 313 (Specific toxic chemical listings)

15.2. International regulations
- CANADA
  No additional information available
- EU-Regulations
  No additional information available
- National regulations
  No additional information available

15.3. US State regulations
- Isopropyl Alcohol 99% (67-63-0)
  State or local regulations: U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Revision date: 11/02/2015

Full text of H-phrases:

- Eye Irrit. 2A: Serious eye damage/eye irritation Category 2A
- Flam. Liq. 2: Flammable liquids Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) Category 3
- H225: Highly flammable liquid and vapor
- H319: Causes serious eye irritation
- H336: May cause drowsiness or dizziness

NFPA health hazard: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard: 3 - Liquids and solids that can be ignited under almost all ambient conditions.
NFPA reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

SDS US (GHS HazCom 2012)

The information and recommendations contained in this SDS are to the best belief and knowledge of Alchem Chemical Co. to be correct and reliable as of the date of issue. It is the end user's responsibility to satisfy themselves that the product is suitable for the intended use. If the buyer repackages this product it becomes their responsibility to insure proper health, safety and other necessary information is included with and/or on the container.