1 PRODUCT AND COMPANY IDENTIFICATION

Product name: 2-Propanol

Manufacturer: Avantor Performance Materials, Inc.
3477 Corporate Parkway, Suite 200
Center Valley, PA 18034
U.S.A.

Contact Person: Environmental Health & Safety
e-mail: info@avantormaterials.com

Product No.: 9079-69, 9079-05, 9079-16, 9079-03, 9079-14, 9079-18

Telephone: Customer Service: 855-282-6867

Emergency telephone:
24 Hour Emergency: 908-859-2151
Chemtrec: 800-424-9300

2 HAZARDS IDENTIFICATION

Emergency Overview:

Appearance:
Color: Colorless
Form : Liquid
Odor: Odor of rubbing alcohol

Signal words WARNING!

Potential Health Effects:
General Causes eye irritation. Harmful if swallowed. Prolonged or repeated skin contact may cause drying, cracking, or irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract.

Potential Physical / Chemical Effects: Flammable liquid and vapor.

Inhalation: May cause irritation to the mucous membranes and upper respiratory tract. In high concentrations, vapors and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Skin: Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping.

Eye: Causes eye irritation. High vapor concentrations may cause irritation.

Ingestion: Irritating. May cause nausea, stomach pain and vomiting. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonia.

Chronic Effects: Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Routes of Exposure: Skin and/or eye contact., Inhalation, Ingestion

Target Organs: Central nervous system
OSHA Regulatory Status
This product is hazardous according to OSHA 29CFR 1910.1200.

Environment:
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3 COMPOSITION / INFORMATION ON INGREDIENTS

General information:

Hazardous Component(s):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>67-63-0</td>
<td>98 - 100%</td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4 FIRST AID MEASURES

General: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Inhalation: Move to fresh air. Get medical attention if symptoms persist.

Skin contact: Wash skin thoroughly with soap and water. Get medical attention if symptoms occur. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Ingestion: Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Notes to the physician:
Treatment: Symptoms may be delayed.

5 FIRE-FIGHTING MEASURES

Extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Unusual Fire & Explosion Hazards: Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard.

Special Fire Fighting Procedures: Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Protective Measures: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Keep unauthorized personnel away. Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

Spill Cleanup Methods: Eliminate all ignition sources if safe to do so. Dike far ahead of larger spill for later recovery and disposal. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

7 HANDLING AND STORAGE

Handling: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Use personal protective equipment as required. Avoid breathing high vapor concentrations. Avoid contact with eyes and prolonged or repeated contact with skin. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. See Section 8 of the MSDS for Personal Protective Equipment.

Storage: Keep away from food, drink and animal feedingstuffs. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.
8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Type</th>
<th>Exposure Limit values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>TWA</td>
<td>200 ppm</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>400 ppm</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>PEL</td>
<td>400 ppm 980 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>500 ppm 1,225 mg/m³</td>
<td>US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)</td>
</tr>
</tbody>
</table>

Biological limit values

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Exposure Limit values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPYL ALCOHOL (acetone: Sampling time: End of shift at end of work week.)</td>
<td>40 mg/l (Urine)</td>
<td>ACGIH BEL (2011)</td>
</tr>
</tbody>
</table>

Protective Measures:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Respiratory Protection:

In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge.

Eye protection:

Wear safety glasses with side shields (or goggles).

Skin and Body Protection:

Wear suitable protective clothing and gloves.

Hygiene measures:

Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Avoid contact with eyes. Do not eat, drink or smoke when using the product. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Contaminated work clothing should not be allowed out of the workplace.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State: Liquid
Form: Liquid
Color: Colorless
Odor: Odor of rubbing alcohol
Odor Threshold: No data available.
pH: No data available.
Freezing point: -88.5 °C
Boiling Point: 82.5 °C (101.325 kPa)
Flash Point: 12 °C (Closed Cup)
Evaporation Rate: 2.8 n-butyl acetate=1
Flammability (solid, gas): Class IB Flammable Liquid
Flammability Limit - Upper (%)--: 12.7 %(V)
Flammability Limit - Lower (%)--: 2 %(V)
Vapor pressure: 6.053 kPa (25 °C)
Vapor density (air=1): 2.1 AIR=1
Relative density: 0.7850 (20 °C) 4 °C
Solubility(ies)
   Solubility in Water: Miscible with water.
   Solubility (other): No data available.
Partition coefficient (n-octanol/water): 0.05
Autoignition Temperature: 399 °C
Decomposition Temperature: No data available.
Viscosity: No data available.
Explosive properties: No data available.
Oxidizing properties: No data available.

10 STABILITY AND REACTIVITY

Stability: Material is stable under normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Heat, sparks, flames. Sunlight.
Hazardous decomposition products: Thermal decomposition may release oxides of carbon.

11 TOXICOLOGICAL INFORMATION

Product:
Acute Toxicity (Oral): LD 50 (Rat): 5,045 mg/kg
Acute Toxicity (Dermal): LD 50 (Rabbit): 12,800 mg/kg
Inhalation: May cause irritation to the mucous membranes and upper respiratory tract.
Ingestion: Irritating. May cause nausea, stomach pain and vomiting.
Skin corrosion/irritation: Causes mild skin irritation.
Serious eye damage/eye irritation: Causes serious eye irritation.
Respiratory sensitizer/Skin sensitizer: Not a skin sensitizer.
Carcinogenicity: This substance has no evidence of carcinogenic properties.
Mutagenesis: No mutagenic components identified
Reproductive toxicity: No components toxic to reproduction
Other Effects: None known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product: Acute toxicity (Fish): LC 50 (Western mosquitofish (Gambusia affinis), 96 h): > 1,400 mg/l
Chronic Toxicity (Fish): No data available.
Acute toxicity (Aquatic invertebrates): LC 50 (Water flea (Daphnia magna), 24 h): 10,000 mg/l
Chronic Toxicity (Aquatic invertebrates): No data available.
Acute toxicity (Aquatic plants): No data available.

Persistence and degradability: Expected to be readily biodegradable.
Bioaccumulative potential: No data available on bioaccumulation.
Mobility: The product is partly soluble in water. May spread in the aquatic environment.

13 DISPOSAL CONSIDERATIONS

Disposal Methods: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Since emptied containers retain product residue, follow label warnings even after container is emptied.
14 TRANSPORT INFORMATION

**DOT**
- UN number: UN 1219
- Proper Shipping Name: Isopropanol
- Transport hazard class(es): 3
- Subsidiary risk label: –
- Packing group: II
- Label(s): 3
- Marine Pollutant

**IMDG - International Maritime Dangerous Goods Code**
- UN number: UN 1219
- UN proper shipping name: ISOPROPAANOL
- Transport hazard class(es): 3
- Subsidiary risk label: –
- Packing group: II
- Label(s): 3
- Marine Pollutant:
- EmS No.: F-E; S-D

**IATA**
- UN number: UN 1219
- Proper Shipping Name: Isopropanol
- Transport hazard class(es): 3
- Subsidiary risk label: –
- Packing group: II
- Label(s): 3

15 REGULATORY INFORMATION

**Inventory Status:**
- Australia AICS: On or in compliance with the inventory
- Canada DSL Inventory List: On or in compliance with the inventory
- EU EINECS List: On or in compliance with the inventory
- EU ELINCS List: Not in compliance with the inventory.
- Japan (ENCS) List: On or in compliance with the inventory
- EU No Longer Polymers List: Not in compliance with the inventory.
- China Inv. Existing Chemical Substances: On or in compliance with the inventory
- Korea Existing Chemicals Inv. (KECI): On or in compliance with the inventory
- Canada NDSL Inventory: Not in compliance with the inventory.
- Philippines PICCS: On or in compliance with the inventory
- US TSCA Inventory: On or in compliance with the inventory
- New Zealand Inventory of Chemicals: On or in compliance with the inventory
- Switzerland Consolidated Inventory: Not in compliance with the inventory.
- Japan ISHL Listing: On or in compliance with the inventory
- Japan Pharmacopoeia Listing: Not in compliance with the inventory.

**US Regulations**
- **CERCLA Hazardous Substance List (40 CFR 302.4):**

- **Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):**
  - None

- **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**
  - None
SARA Title III
● Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
  None
  None

● Section 311/312 (40 CFR 370):
  X Acute (Immediate)  □ Chronic (Delayed)  □ Fire  □ Reactive  □ Pressure Generating

● Section 313 Toxic Release Inventory (40 CFR 372):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Reporting threshold for other users</th>
<th>Reporting threshold for manufacturing and processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>67-63-0</td>
<td>10000 lbs</td>
<td>25000 lbs.</td>
</tr>
</tbody>
</table>

State Regulations
● California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
  □

● Massachusetts Right-To-Know List:
  ISOPROPYL ALCOHOL  □ Listed

● New Jersey Right-To-Know List:
  ISOPROPYL ALCOHOL  □ Listed

● Pennsylvania Right-To-Know List:
  ISOPROPYL ALCOHOL  □ Listed

16  OTHER INFORMATION

NFPA Hazard ID

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Revision Information:
Issue Date: 01-09-2013
SDS No: 
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