# Material Safety Data Sheet

Isopropyl Alcohol (Isopropanol)

## Section 1. Chemical product and company identification

**Product Name** : Isopropyl Alcohol (Isopropanol)

**Supplier** : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

**Synonym** : alcool isopropilico (italian); alcool isopropylique (french); avantine; dimethylcarbinol; isohol; isopropanol; iso-propylalkohol (german); lutosol; petrohol; propropan-2-ol; 2-propanol; i-propanol (german); sec-propyl alcohol; i-propylalkohol; ipa; propan-2-ol; sec-propyl alcohol; arquad dmcb, component of (with 169153); visco 1152, component of (with 107601); pro

**MSDS#** : 001105

**Date of Preparation/Revision** : **7/27/2006.**

**In case of emergency** : 1-866-734-3438

## Section 2. Hazards identification

**Physical state** : Liquid. (COLORLESS LIQUID WITH THE ODOR OF RUBBING ALCOHOL)

**Emergency overview** : Danger!

HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
VAPOR MAY CAUSE FLASH FIRE.
POSSIBLE CANCER HAZARD.
MAY CAUSE CANCER BASED ON ANIMAL DATA.

Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Risk of cancer depends on duration and level of exposure.

**Routes of entry** : Eye contact.

**Potential acute health effects**

**Eyes** : Irritating to eyes.

**Skin** : Irritating to skin.

**Inhalation** : Harmful by inhalation.

**Ingestion** : Harmful if swallowed.

**Potential chronic health effects** : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
**MUTAGENIC EFFECTS** Not available.
**TERATOGENIC EFFECTS**: Not available.

**Medical conditions aggravated by overexposure** : Repeated or prolonged exposure is not known to aggravate medical condition.

**See toxicological Information (section 11)**

## Section 3. Composition, Information on Ingredients

**United States**

| | | | Exposure limits |
|---|---|---|---|
| propan-2-ol | 67-63-0 | 100 | **ACGIH TLV (United States, 1/2005). Notes: Refers to Appendix A -- Carcinogens.**<br>**ACGIH 2003 Adoption**<br>STEL: 400 ppm 15 minute(s). Form: All forms<br>TWA: 200 ppm 8 hour(s). Form: All forms<br>**NIOSH REL (United States, 12/2001).**<br>STEL: 1225 mg/m$^3$ 15 minute(s). Form: All forms |

STEL: 500 ppm 15 minute(s). Form: All forms
TWA: 980 mg/m$^3$ 10 hour(s). Form: All forms
TWA: 400 ppm 10 hour(s). Form: All forms
**OSHA PEL (United States, 8/1997).**
TWA: 980 mg/m$^3$ 8 hour(s). Form: All forms
TWA: 400 ppm 8 hour(s). Form: All forms

## Section 4. First aid measures

**Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin contact** : Wash with soap and water. Get medical attention if irritation develops.

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

**Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

## Section 5. Fire fighting measures

**Flammability of the product** : Flammable.

**Auto-ignition temperature** : 399°C (750.2°F)

**Flash point** : Open cup: 11.85°C (53.3°F).

**Flammable limits** : Lower: 2% Upper: 12%

**Products of combustion** : These products are carbon oxides (CO, $CO_2$).

**Fire fighting media and instructions** : In case of fire, use water spray (fog), foam, dry chemicals, or $CO_2$.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

**Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

## Section 6. Accidental release measures

**Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Section 7. Handling and storage

**Handling** : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

**Storage** : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

# Section 8. Exposure Controls, Personal Protection

**Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal protection**

**Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

**Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

| Product name | Exposure limits |
|---|---|
| **United States** | |
| propan-2-ol | **ACGIH TLV (United States, 1/2005). Notes: Refers to Appendix A -- Carcinogens. ACGIH 2003 Adoption**<br>STEL: 400 ppm 15 minute(s). Form: All forms<br>TWA: 200 ppm 8 hour(s). Form: All forms<br>**NIOSH REL (United States, 12/2001).**<br>STEL: 1225 mg/m$^3$ 15 minute(s). Form: All forms<br>STEL: 500 ppm 15 minute(s). Form: All forms<br>TWA: 980 mg/m$^3$ 10 hour(s). Form: All forms<br>TWA: 400 ppm 10 hour(s). Form: All forms<br>**OSHA PEL (United States, 8/1997).**<br>TWA: 980 mg/m$^3$ 8 hour(s). Form: All forms<br>TWA: 400 ppm 8 hour(s). Form: All forms |

# Section 9. Physical and chemical properties

**Physical state** : Liquid. (COLORLESS LIQUID WITH THE ODOR OF RUBBING ALCOHOL)

**Odor** : NONRESIDUAL

**Molecular weight** : 60.11 g/mole

**Molecular formula** : C3-H8-O

**Boiling/condensation point** : 82.5°C (180.5°F)

**Melting/freezing point** : -88.88°C (-128°F)

**Specific gravity** : 0.785 (Water = 1)

**Vapor density** : 2.07 (Air = 1)

**Evaporation rate** : 1.7 compared to Butyl acetate.

# Section 10. Stability and reactivity

**Stability and reactivity** : The product is stable.

**Incompatibility with various substances** : Highly reactive with acids, moisture.

# Section 11. Toxicological information

**Toxicity data**

| Ingredient name | Test | Result | Route | Species |
|---|---|---|---|---|
| propan-2-ol | LD50 | 5045 mg/kg | Oral | Rat |
| | LD50 | 6410 mg/kg | Oral | Rabbit |
| | LD50 | 3600 mg/kg | Oral | Mouse |
| | LD50 | 12800 mg/kg | Dermal | Rabbit |
| | LDLo | 1537 mg/kg | Oral | Dog |
| | LDLo | 3570 mg/kg | Oral | human |
| | LDLo | 5272 mg/kg | Oral | man |
| | LC50 | 45248 ppm (1 hour(s)) | Inhalation | Rat |

**IDLH** : 2000 ppm

**Chronic effects on humans** : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
Causes damage to the following organs: upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : Hazardous in case of eye contact (irritant).

**Specific effects**

**Carcinogenic effects** : May cause cancer based on animal data. Risk of cancer depends on duration and level of exposure.

**Mutagenic effects** : No known significant effects or critical hazards.

**Reproduction toxicity** : No known significant effects or critical hazards.

# Section 12. Ecological information

| Ingredient name | Species | Period | Result |
|---|---|---|---|
| propan-2-ol | Pimephales promelas (EC50) | 48 hour(s) | 10000 mg/l |
| | Lepomis macrochirus (LC50) | 96 hour(s) | >1400 mg/l |
| | Pimephales promelas (LC50) | 96 hour(s) | 6550 mg/l |
| | Pimephales promelas (LC50) | 96 hour(s) | 9640 mg/l |
| | Pimephales promelas (LC50) | 96 hour(s) | 10400 mg/l |
| | Pimephales promelas (LC50) | 96 hour(s) | 11130 mg/l |

**Products of degradation** : These products are carbon oxides (CO, $CO_2$) and water.

**Toxicity of the products of biodegradation** : The product itself and its products of degradation are not toxic.

# Section 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**Consult your local or regional authorities.**

# Section 14. Transport information

| Regulatory information | UN number | Proper shipping name | Class | Packing group | Label | Additional information |
|---|---|---|---|---|---|---|
| **DOT Classification** | UN1219 | ISOPROPANOL OR ISOPROPYL ALCOHOL | 3 | II |  | **Limited quantity** Yes. **Packaging instruction** **Passenger Aircraft** |

| *Isopropyl Alcohol (Isopropanol)* | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Quantity limitation: 5 L<br><br>**Cargo Aircraft**<br>Quantity limitation: 60 L<br><br>**Special provisions**<br>IB2, T4, TP1 |
| **TDG Classification** | UN1219 | ISOPROPANOL; OR ISOPROPYL ALCOHOL | 3 | II |  | **Explosive Limit and Limited Quantity Index**<br>1<br><br>**Passenger Carrying Road or Rail Index**<br>5 |
| **Mexico Classification** | UN1219 | ISOPROPANOL OR ISOPROPYL ALCOHOL | 3 | II |  | **Limited quantity**<br>Yes.<br><br>**Packaging instruction**<br>**Passenger Aircraft**<br>Quantity limitation: 5 L<br><br>**Cargo Aircraft**<br>Quantity limitation: 60 L<br><br>**Special provisions**<br>IB2, T4, TP1 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

# Section 15. Regulatory information

**United States**

**HCS Classification** : Flammable liquid
Carcinogen
Target organ effects

**U.S. Federal regulations** : TSCA 8(b) inventory: propan-2-ol

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: propan-2-ol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: propan-2-ol: Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

**SARA 313**

| | | Product name | CAS number | Concentration |
|---|---|---|---|---|
| **Form R - Reporting requirements** | : | propan-2-ol | 67-63-0 | 100 |
| **Supplier notification** | : | propan-2-ol | 67-63-0 | 100 |

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations** : Pennsylvania RTK: propan-2-ol: (environmental hazard, generic environmental hazard)
Massachusetts RTK: propan-2-ol
New Jersey: propan-2-ol

**Canada**

**WHMIS (Canada)** : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
Class D-2B: Material causing other toxic effects (TOXIC).

CEPA DSL: propan-2-ol

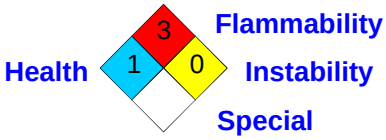
## Section 16. Other information

**Label Requirements** : HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
VAPOR MAY CAUSE FLASH FIRE.
POSSIBLE CANCER HAZARD.
MAY CAUSE CANCER BASED ON ANIMAL DATA.

**Hazardous Material Information System (U.S.A.)** :

| | | |
|---|---|---|
| **Health** | * | 1 |
| **Fire hazard** | | 3 |
| **Reactivity** | | 0 |
| **Personal protection** | | C |

**National Fire Protection Association (U.S.A.)** :

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