

MSDS: ISOPROPYL ALCOHOL, (IPA, 2-PROPANOL)
Reagent ACS

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TELECHEM INTERNATIONAL, INC

524 E. WEDDELL

Sunnyvale, CA 94089

1-408-744-1331

www.arrayit.com

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (NORTH AMERICA)

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MSDS Preparer's Name: R. Schena

CHEMICAL FAMILY: alcohols, aliphatic

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ISOPROPYL ALCOHOL

CAS NUMBER: 67-63-0

EC NUMBER (EINECS): 200-661-7

EC INDEX NUMBER: 603-117-00-0

PERCENTAGE: 100.00

SECTION 3 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=3 REACTIVITY=0

EMERGENCY OVERVIEW:

PHYSICAL FORM: soluble concentrate

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flash back hazard.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: same as effects reported in short term ingestion, irritation, hallucinations

LONG TERM EXPOSURE: no information on significant adverse effects

SKIN CONTACT:

SHORT TERM EXPOSURE: same as effects reported in short term ingestion, irritation

LONG TERM EXPOSURE: irritation

EYE CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), eye damage

LONG TERM EXPOSURE: irritation

INGESTION:

SHORT TERM EXPOSURE: changes in blood pressure, nausea, vomiting, stomach pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, lung congestion, internal bleeding, kidney damage, coma

LONG TERM EXPOSURE: no information on significant adverse effects

CARCINOGEN STATUS:

OSHA: No

NTP: No

IARC: No

SECTION 4 FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage and activated charcoal slurry. Consider oxygen.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive.

EXTINGUISHING MEDIA: alcohol resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk.

Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT: 53.0F,11.7C

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

SECTION 7 HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

ISOPROPYL ALCOHOL:

ISOPROPYL ALCOHOL (ISOPROPANOL; 2-PROPANOL):

400 ppm (980 mg/m³) OSHA TWA

500 ppm (1230 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

400 ppm ACGIH TWA

500 ppm ACGIH STEL

400 ppm (980 mg/m³) NIOSH recommended TWA 10 hour(s)

500 ppm (1225 mg/m³) NIOSH recommended STEL

500 mg/m³ (200 ml/m³) DFG MAK (peak limitation category-II, 1)

400 ppm (999 mg/m³) UK OES TWA

500 ppm (1250 mg/m³) UK OES STEL

MEASUREMENT METHOD: Charcoal tube; 2-Butanol/Carbon disulfide; Gas chromatography with flame ionization detection; NIOSH IV # 1400, Alcohols
VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

2000 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any powered, air-purifying respirator with organic vapor cartridge(s).

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Escape -

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
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Appearance and Odor: COLORLESS LIQUID; CHARACTERISTIC ODOR

Boiling Point: 180F,82C

Melting Point: -127F,-88C

Vapor Pressure (MM Hg/70 F): 33 MMHG

Vapor Density (Air=1): 2.07

Specific Gravity: 0.7864

Decomposition Temperature: UNKNOWN

Evaporation Rate And Ref: 2.88 (N-BUTYL ACETATE=1)

Solubility In Water: COMPLETE

Percent Volatiles By Volume: 100
Corrosion Rate (IPY): UNKNOWN

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure. Stable at normal temperatures and pressure.

INCOMPATIBILITIES: acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts

ISOPROPYL ALCOHOL:

ACIDS: Incompatible.

ACIDS ANHYDRIDES: Incompatible.

ALUMINUM: Dissolution is exothermic.

BARIUM PERCHLORATE: Formation of explosive compound.

2-BUTANONE (METHYL ETHYL KETONE): Accelerates the peroxidation of the alcohol.

CHROMIUM TRIOXIDE (GRANULAR): Ignition.

COATINGS: May be attacked.

DIOXYGENYL TETRAFLUOROBORATE: Ignition at ambient temperatures.

HALOGENS: Incompatible.

HYDROGEN + PALLADIUM (PARTICLES): Ignition on exposure to air.

HYDROGEN PEROXIDE: Formation of explosive compound.

KETONES: Markedly increases the possibility of peroxidation.

NITROFORM (TRINITROMETHANE): Dissolves liberating heat and possibly exploding.

OLEUM: Temperature and pressure increase in closed container.

OXIDIZERS (STRONG): Fire and explosion hazard.

OXYGEN (GAS): Autoxidation, on exposure to light, results in formation of ketones and potentially explosive hydrogen peroxide.

PHOSGENE: In the presence of iron salts, may explode.

PLASTICS: May be attacked.

POTASSIUM TERT-BUTOXIDE: Ignition.

RUBBER: May be attacked.

SODIUM DICHROMATE + SULFURIC ACID: Exothermic reaction with possible incandescence.

See also ALCOHOLS.

ALCOHOLS:

ACETALDEHYDE: Violent condensation reaction.

BARIUM PERCHLORATE: Formation of highly explosive perchloric ester on refluxing.

CHLORINE: Formation of highly explosive alkyl hypochlorites.

DIETHYL ALUMINUM BROMIDE: Spontaneous ignition.

ETHYLENE OXIDE: Possible explosion

HEXAMETHYLENE DIISOCYANATE: Possible explosion in absence of solvent.

HYDROGEN PEROXIDE + SULFURIC ACID: Possible explosion.
HYPOCHLOROUS ACID: Formation of highly explosive alkyl hypochlorites.
ISOCYANATES: Possible explosion in absence of solvent.
LITHIUM ALUMINUM HYDRIDE: Vigorous reaction.
NITROGEN TETROXIDE: Possible explosion.
PERCHLORIC ACID (HOT): Dangerous interaction.
PERMONOSULFURIC ACID: Possible explosion on contact with primary or secondary alcohols.
TRI-ISO-BUTYL ALUMINUM: Violent reaction.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

ISOPROPYL ALCOHOL:

IRRITATION DATA:

500 mg skin-rabbit mild; 100 mg eyes-rabbit severe; 10 mg eyes-rabbit moderate; 100 mg/24 hour(s) eyes-rabbit moderate

TOXICITY DATA:

14432 mg/kg oral-man TDLo; 223 mg/kg oral-human TDLo; 5272 mg/kg oral-man LDLo; 3570 mg/kg oral-human LDLo; 13 gm/kg oral-infant TDLo; 2 ml/kg unreported-human LDLo; 2770 mg/kg unreported-man LDLo; 1375 mg/kg unreported-infant TDLo; 5045 mg/kg oral-rat LD50; 16000 ppm/8 hour(s) inhalation-rat LC50; 2735 mg/kg intraperitoneal-rat LD50; 1088 mg/kg intravenous-rat LD50; 3600 mg/kg oral-mouse LD50; 12800 ppm/3 hour(s) inhalation-mouse LCLo; 4477 mg/kg intraperitoneal-mouse LD50; 6 gm/kg subcutaneous-mouse LDLo; 1509 mg/kg intravenous-mouse LD50; 1537 mg/kg oral-dog LDLo; 1024 mg/kg intravenous-dog LDLo; 6 ml/kg oral-cat LDLo; 1963 mg/kg intravenous-cat LDLo; 6410 mg/kg oral-rabbit LD50; 12800 mg/kg skin-rabbit LD50; 667 mg/kg intraperitoneal-rabbit LD50; 1184 mg/kg intravenous-rabbit LD50; 2560 mg/kg intraperitoneal-guinea pig LD50; 3444 mg/kg intraperitoneal-hamster LD50; 20 gm/kg parenteral-frog LDLo; 6 gm/kg subcutaneous-mammal LDLo; 7 ml/kg/7 day(s) intermittent oral-rat TDLo; 100 mg/m³/4 hour(s)-17 week(s) intermittent inhalation-rat TCLo; 8000 ppm/8 hour(s)-20 week(s) intermittent inhalation-rat TCLo; 5000 ppm/6 hour(s)-90 day(s) intermittent inhalation-rat TCLo; 2500 ppm/6 hour(s)-2 year(s) intermittent inhalation-rat TCLo; 10000 ppm/6 hour(s)-11 day(s) intermittent inhalation-mouse TCLo; 5000 ppm/6 hour(s)-13 week(s) intermittent inhalation-mouse TCLo; 5000 ppm/6 hour(s)-13 week(s) intermittent inhalation-mouse TCLo; 5000 ppm/6 hour(s)-78 week(s) intermittent inhalation-mouse TCLo

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; EC: Category 1

Human Sufficient Evidence. IARC Group 1. Workers involved in the manufacture of isopropyl alcohol by the strong-acid process, involving the formation of isopropyl oils, showed an increase in paranasal and laryngeal cancer.

LOCAL EFFECTS:

Irritant: inhalation, eye

ACUTE TOXICITY LEVEL:

Slightly Toxic: inhalation, dermal absorption, ingestion

TARGET ORGANS: central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: kidney disorders, liver disorders,

respiratory disorders, skin disorders and allergies

MUTAGENIC DATA:

Not determined

REPRODUCTIVE EFFECTS DATA:

Not determined

HEALTH EFFECTS:

INHALATION:

ACUTE EXPOSURE:

ISOPROPYL ALCOHOL: Human subjects exposed to 400 ppm for 3-5 minutes had mild irritation of the nose and throat. At 800 ppm the irritation was not severe but uncomfortable. Chest tightness and wheezing have also been reported in humans. Higher concentrations may cause effects as detailed in acute ingestion. The length of time required to produce deep narcosis in animals was inversely proportional to the concentration: The onset of deep narcosis ranged from 460 minutes at 3250 ppm to 100 minutes at 24,500 ppm.

CHRONIC EXPOSURE:

ISOPROPYL ALCOHOL: Mice subjected to 10900 ppm isopropyl alcohol in air for about 4 hours/day until they had accumulated 123 hours of exposure were narcotized but survived. Reversible fatty changes were observed in the liver. Male mice exposed to either 1000 or 5000 ppm of isopropyl alcohol vapor for 6 hours a day for 9 exposures exhibited hyaline droplet nephropathy. Reproductive effects have been reported in animals. There has been an increased incidence of cancer of the paranasal sinuses, and possibly of the larynx, in the manufacture of isopropyl alcohol by the strong acid process, involving the formation of isopropyl oils. It is not clear which substances are responsible.

SKIN CONTACT:

ACUTE EXPOSURE:

ISOPROPYL ALCOHOL: Contact with the skin may cause slight irritation. Contact dermatitis has been reported in a few sensitive individuals. Substance may be dermally absorbed resulting in systemic toxicity as detailed in acute ingestion. Toxic effects may become more marked if absorption and inhalation occur concurrently.

CHRONIC EXPOSURE:

ISOPROPYL ALCOHOL: Repeated or prolonged exposure may cause dermatitis due to the defatting action on the skin. Repeated and prolonged exposure to the skin of rabbits caused slight erythema, drying, and superficial desquamation.

EYE CONTACT:

ACUTE EXPOSURE:

ISOPROPYL ALCOHOL: May cause severe irritation with eye damage. In rabbit eyes, a drop caused mild transitory injury and a 50% aqueous solution after 3 minutes caused moderate irritation. Contact with a 70% solution caused conjunctivitis, iritis, and corneal opacity.

CHRONIC EXPOSURE:

ISOPROPYL ALCOHOL: Prolonged or repeated exposure to vapors may cause conjunctivitis.

INGESTION:

ACUTE EXPOSURE:

ISOPROPYL ALCOHOL: Ingestion may cause abdominal pain, hematemesis, nausea, vomiting, and hemorrhage. Central nervous system depression may occur with headache, dizziness, flushing, incoordination, hallucinations, stupor, confusion, hypotension, areflexia, and refractory narcosis. Oliguria followed by diuresis and coma may also occur. Other symptoms may include hypoglycemia, tenderness and edema of muscles, and arrhythmias. Vomiting with aspiration may cause aspiration pneumonia.

CHRONIC EXPOSURE:

ISOPROPYL ALCOHOL: No adverse effects resulted in humans following daily ingestion of 2.6 and 6.4 mg/kg for 6 weeks. Rats that ingested 0.5 to 10.0% isopropyl alcohol in drinking water for 27 weeks showed decreased body weight. Prolonged oral administration in rabbits produced anesthesia and death. Reproductive effects have been reported in animals.

SECTION 12 ECOLOGICAL INFORMATION

Not determined

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION:

DOT PSN Code: HWY

DOT Proper Shipping Name: ISOPROPANOL OR ISOPROPYL ALCOHOL

DOT Class: 3
DOT ID Number: UN1219
DOT Pack Group: II
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: ITK
IMO Proper Shipping Name: ISOPROPYL ALCOHOL
IMO Regulations Page Number: 3244
IMO UN Number: 1219
IMO UN Class: 3.2
IMO Subsidiary Risk Label: -
IATA PSN Code: ONH
IATA UN ID Number: 1219
IATA Proper Shipping Name: ISOPROPANOL
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID

SECTION 15 REGULATORY INFORMATION

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:
EC CLASSIFICATION (CALCULATED): Not determined.

SECTION 16 OTHER INFORMATION

MSDS SUMMARY OF CHANGES
SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS
SECTION 3 HAZARDS IDENTIFICATION
SECTION 11 TOXICOLOGICAL INFORMATION