COMET COMET CHEMICAL COMPANY LTD.

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**Isopropyl Alcohol**
Version #	01
Issue date	06-08-2014
Chemical name	Isopropanol
Chemical description	Saturated secondary aliphatic alcohol
CAS #	67-63-0
MSDS Number	COM061
Product use	Professional use only
Synonym(s)	PROPYL ALCOHOL * IPA * Isopropanol * 2-PROPANOL
Manufacturer information	Refer to supplier
Supplier	Comet Chemical 3463 Thomas Street Innisfill, ON L9S 3W4 CA Information (M-F 8:00-5:00): 705-436-5580 24 Hour Number (Newalta): 800-567-7455

2. Hazards Identification

Emergency overview

Clear, colorless liquid with alcohol-like odor.

DANGER
EXTREMELY FLAMMABLE LIQUID AND VAPOR.
Will be easily ignited by heat, spark or flames. Vapors may cause a flash fire or ignite explosively. Causes serious eye irritation. May cause mild skin irritation. May cause central nervous system effects. May cause respiratory irritation. May be an aspiration hazard. Aspiration may occur during swallowing or vomiting, resulting in lung injury.

Potential health effects

Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Can cause severe eye irritation.
Skin	Direct skin contact may cause slight or mild, transient irritation.
Inhalation	May cause irritation of respiratory tract.
Ingestion	May be harmful if swallowed. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. May be an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.
Target organs	Central nervous system. Eyes. Respiratory system.
Chronic effects	Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin. Prolonged or repeated overexposure may cause liver and kidney effects.
Signs and symptoms	Can cause severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. May cause drowsiness or dizziness. May cause respiratory irritation. May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. May be an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Potential environmental effects	See ECOLOGICAL INFORMATION, Section 12.

3. Composition / Information on Ingredients

Components	CAS #	Percent
2-Propanol	67-63-0	100

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin contact	Immediately flush skin with plenty of water. Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
Inhalation	Move to fresh air. If breathing is difficult, trained personnel should give oxygen. If not breathing, give artificial respiration. Seek immediate medical attention/advice.
Ingestion	Seek immediate medical attention/advice. Do not induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	Aspiration hazard. This product is a CNS depressant.
General advice	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	Flammable by WHMIS criteria. Extremely flammable liquid and vapor. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g static electricity, pilot lights, or mechanical / electrical equipment). Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode. Vapors may form explosive mixtures with air.

Extinguishing media

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

Explosion data

Sensitivity to static discharge	May be sensitive to static discharge.
Sensitivity to mechanical impact	Not expected to be sensitive to mechanical impact.
Hazardous combustion products	Carbon oxides. Other irritating fumes and smoke.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Ventilate the contaminated area. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. See Section 8 of the MSDS for Personal Protective Equipment.
Environmental precautions	For large (industrial) releases, prevent spill from entering a waterway.
Methods for containment	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Methods for cleaning up	Ventilate the contaminated area. Remove sources of ignition. Use only non-sparking tools. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Local authorities should be advised if significant spillages cannot be contained. For waste disposal, see section 13 of the MSDS.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. All equipment used when handling the product must be grounded. Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. When using do not eat or drink. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Avoid release to the environment.

Storage

Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a closed container away from incompatible materials. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS). Keep in an area equipped with sprinklers. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value
2-Propanol (CAS 67-63-0)	STEL	400 ppm
	TWA	200 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
2-Propanol (CAS 67-63-0)	PEL	980 mg/m3
		400 ppm

Biological limit values

ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
2-Propanol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Engineering controls

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. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection

Chemical goggles and face shield are recommended. Eye wash fountain and emergency showers are recommended.

Skin protection

Wear chemical protective equipment that is specifically recommended by the manufacturer. Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.Impervious gloves. Advice should be sought from glove suppliers.

Respiratory protection

Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may be used to reduce exposure. Advice should be sought from respiratory protection specialists.

Hand protection

Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.

9. Physical & Chemical Properties

Appearance Clear, colorless liquid with alcohol-like odor.

Physical state Liquid.

Form Liquid.

Color Clear colorless or nearly colorless

Odor Sharp, alcohol-like

Odor threshold 3 - 60 ppm

pH Not available.

Vapor pressure 33 mm Hg at 20 °C

Vapor density 2.1

Boiling point	180.5 °F (82.5 °C)
Melting point/Freezing point	-128.2 °F (-89 °C)
Solubility (water)	Soluble
Specific gravity	0.79 at 20 °C
Relative density	Not available.
Flash point	55.4 °F (13.0 °C) Closed Cup
Flammability limits in air, upper, % by volume	12
Flammability limits in air, lower, % by volume	2.5
Auto-ignition temperature	750.2 °F (399 °C)
Evaporation rate	Not available.
Partition coefficient (n-octanol/water)	0.1
Molecular weight	60.1 g/mol
Molecular formula	C3-H8-O
Other data	
Density	0.78 g/cm3
Dynamic viscosity	2.1 mPa.s
Dynamic viscosity temp	77 °F (25 °C)
Solubility (other)	Soluble in all proportions in most organic solvents, such as ethanol, acetone, diethyl ether and chloroform; soluble in benzene.
Surface tension	21.32 nS/m

10. Chemical Stability & Reactivity Information

Reactivity	Normally stable. However, 2-propanol may form peroxides when the anhydrous (no water) material is stored for long periods in contact with air and light. The peroxides are not hazardous unless concentrated by distillation.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Keep away from heat, sparks and open flame. Keep away from direct sunlight. Avoid contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Strong acids. Alkali metals. Aluminum.
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5. The following may be released during a fire: Carbon oxides. Other irritating fumes and smoke.
Possibility of hazardous reactions	Hazardous polymerization does not occur. Normally stable. However, 2-propanol may form peroxides when the anhydrous (no water) material is stored for long periods in contact with air and light. The peroxides are not hazardous unless concentrated by distillation.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
2-Propanol (CAS 67-63-0)		
Acute		
Dermal		
LD50	Rabbit	12890 mg/kg
Inhalation		
LC50	Rat	17000 ppm
		41.8 mg/l
Oral		
LD50	Rat	4720 mg/kg

Acute effects	This product is not classified as an acute toxicity hazard. See data above for individual ingredient acute toxicity data. Causes serious eye irritation. May cause respiratory irritation.

Sensitization Not expected to be a skin or respiratory sensitizer.

Chronic effects Chronic skin contact with low concentrations may cause dermatitis. Prolonged or repeated overexposure may cause liver and kidney effects.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

ACGIH Carcinogens

2-Propanol (CAS 67-63-0) A4 Not classifiable as a human carcinogen.

Skin corrosion/irritation Causes mild skin irritation.

Serious eye damage/irritation Causes serious eye irritation.

Mutagenicity Not expected to be mutagenic.

Reproductive effects This product contains Isopropanol. Isopropanol is no longer considered a developmental toxin. Tertaogenic / fetotoxic effects were observed in animals, however the effects were observed in the presence of maternal toxicity or at concentrations where maternal toxicity may occur.

Teratogenicity This product contains Isopropanol. Isopropanol is no longer considered a developmental toxin. Tertaogenic / fetotoxic effects were observed in animals, however the effects were observed in the presence of maternal toxicity or at concentrations where maternal toxicity may occur.

Symptoms and target organs Causes severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. May be an aspiration hazard. May cause central nervous system effects. May cause irritation to the nose, throat and upper respiratory tract. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Epidemiology No epidemiological data is available for this product.

Synergistic materials Not available.

12. Ecological Information

Ecotoxicological data

Product		Species	Test Results
2-Propanol (CAS 67-63-0)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	1400 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	9640 mg/l, 96 hours
Chronic			
Crustacea	EC50	Water flea (Daphnia magna)	30 mg/l, 21 days

Ecotoxicity This material is not expected to be harmful to aquatic life.

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Aquatic toxicity The product should not be allowed to enter drains, water courses or the soil.

Persistence and degradability Readily biodegradable.

Partition coefficient
0.05

Mobility in environmental media High water solubility indicates a high mobility in soil.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

TDG

UN number	UN1219
UN proper shipping name	ISOPROPANOL; or ISOPROPYL ALCOHOL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	Not available.
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.

IATA

UN number	UN1219
UN proper shipping name	ISOPROPANOL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1219
UN proper shipping name	ISOPROPANOL (ISOPROPYL ALCOHOL)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.

IATA; IMDG; TDG

15. Regulatory Information

Canadian regulations	This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
WHMIS status	Controlled
WHMIS classification	B2 - Flammable Liquids D2B - Other Toxic Effects-TOXIC

WHMIS labeling

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information

HMIS® ratings

Health: 2*
Flammability: 3
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 3
Instability: 0

Disclaimer

Prepared by: ICC The Compliance Center Inc. 1-888-442-9628
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Legend to abbreviations and acronyms used in the SDS

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CEPA: Canadian Environmental Protection Act
CPR: Controlled Products Regulation
DSL: Domestic Substance List
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
IUCLID: International Uniform Chemical Information Database
LC: Lethal Concentration
LD: Lethal Dose
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OECD: Organisation for Economic Co operation and Development
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TWA: Time Weighted Average
STEL: Short Term Exposure Limit

References

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2014 (Chempendium, RTECs, HSDB, INCHEM)
European Chemicals Agency, Classification Legislation, 2014.
Material Safety Data Sheet from manufacturer.
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2014.