Issue: 12 May 2015

PRODUCT: Isopropanol

Other Names: Propan-2-ol, 2-propanol

Uses: Industrial solvent: cleaning and degreasing

UN No.	1219
Dangerous Goods Class	3.1B
Subsidiary Risk	None
Pack Group	II
Hazchem	2[Y]E
Poison Schedule	S4

Hazardous Nature: This product is classified as hazardous under NOHSC criteria

Exposure Standards: TEL (Air): N/A; TWA: 983 mg/m3 (400 ppm); STEL: 1230 mg/m3 (500 ppm)

Environmental Standards: EEL (Air): Not established

Physical Characteristics (Typical) **Section 9 of MSDS**

Appearance	Clear, colourless liquid
Boiling Point/ Range (°C):	82
Flash Point (°C):	12
Specific Gravity/ Density (g/ml @ 15°C):	0.785
Autoignition Temperature (°C):	> 350
Chemical Stability:	Stable under normal conditions of use
Reactivity:	Stored mixtures with MEK produce explosive peroxides. Increased rate of peroxide formation with Isobutanol. Peroxide production sharply decreases the Autoignition Temperature. Violent, explosive reactions with metal oxides, oxidising agents, halogenate

Isopropyl Alcohol	67-63-0	100

For further ingredients information, please refer to the full MSDS.

R 36	Irritating to eyes	R 67	Vapours may cause drowsiness and dizziness
R 11	Highly flammable		

For further Risk and Safety information, please refer to the full MSDS.

DEFINITIONS

Dangerous Goods	Products that are classified as Dangerous for Storage and Transport: these products are allocated a UN No., with accompanying Class, Pack Group, and Sub. Risk, if required. Products that do not have a specific description under the code, but have low flash points, or such, must be classified under their most significant risk, eg. Flammable Goods N.O.S. (Not otherwise specified), UN 1993
Poisonous Substance	Products that are classified under the poisons schedule are a poisonous substance. The proportion of the poison in the product will determine its numerical classification.
Hazardous Substance	Products are considered to be Hazardous if they pose an intrinsic risk to human or environmental health, such as mutagens (able to change DNA), teratogens (able to result in birth defects), carcinogens (able to generate cell abnormalities), etc. Materials are not hazardous substances if they pose risks such as potential for misuse, like flammability, or explosions when heated and ignited.

SUMMARY INFORMATION ONLY

1. IDENTIFICATION

Product Name: **Isopropanol**
Other Names: Propan-2-ol, 2-propanol
Chemical Family: Oxygenated hydrocarbon
Molecular formula: C3H8O
Recommended Use: Industrial solvent: cleaning and degreasing
Supplier: Mainland Cleaning Products
Address: **21 Glasgow St, South Dunedin**
Telephone: 03 455 6805
Emergency phone: **CHEMCALL: 0800 243 622**
All other inquiries:

2. HAZARDS IDENTIFICATION

Health Hazard Classification

This product is classified as hazardous under NOHSC criteria

Hazard Category

Xi: Irritant

Risk Phrases

R 36	Irritating to eyes	R 67	Vapours may cause drowsiness and dizziness
R 11	Highly flammable		

Safety Phrases

S 7/9	Keep container tightly closed and in a well ventilated place	S 16	Keep away from sources of ignition - No smoking
S 24/25	Avoid contact with skin and eyes	S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S 33	Take precautionary measures against static discharges	S 43B	In case of fire use sand, earth, chemical powder or alcohol type foam

Dangerous Goods Classification

3.1B

Poisons Schedule

S4

3. COMPOSITION: Information on Ingredients

Isopropyl Alcohol **67-63-0**

Chemical Ingredient	CAS No.	Proportion (%v/v)
Isopropyl Alcohol	67-63-0	100

4. FIRST AID MEASURES

For advice, contact National Poison Centre (Phone New Zealand: 0800 764 766) or a doctor.

Swallowed

If swallowed, do not induce vomiting. Give a glass of water. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.

Skin Contact

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. For advice, contact the National Poisons Centre (0800 746 766) or a doctor immediately.

Eye Contact

Hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the National Poisons Centre, or for at least 15 minutes.

Inhalation

Move the victim to fresh air immediately. Begin artificial respiration if breathing has stopped.

First Aid facilities

Provide eye baths and safety showers close to areas where splashing may occur.

Medical Attention

Treat according to symptoms. Gastric lavage may be indicated if ingested. Do not wait for symptoms to develop. General measures should be taken to control acidosis and maintain urine output.

5. FIRE FIGHTING MEASURES

Shut off product that may 'fuel' a fire if safe to do so. Allow trained personnel to attend a fire in progress, providing firefighters with this Material Safety Data Sheet. Prevent extinguishing media from escaping to drains and waterways.

Suitable extinguishing media

Water spray, water fog or fine mist, alcohol foam

Hazards from combustion products

Carbon dioxide and carbon monoxide

Precautions for fire fighters and special protective equipment

Full protective clothing and self-contained breathing apparatus

Hazchem Code:

2[Y]E

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Prevent fluid from escaping to drains and waterways. Contain leaking packaging in a containment drum. Prevent vapours from building up in confined areas. Ensure that drain valves are closed at all times. Clean up and report spills immediately.

Methods and materials for containment

Major Land Spill

- Eliminate sources of ignition.
- Warn occupants of downwind areas of possible fire and explosion hazard.
- Prevent liquid from entering sewers, watercourses, or low-lying areas.
- Keep the public away from the area.
- Shut off the source of the spill if possible and safe to do so.
- Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation.
- Take measures to minimise the effect on the ground water.
- Contain the spilled liquid with sand or earth.
- Recover by pumping – use explosion proof pump or hand pump – or with a suitable absorbent material.

- Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.
- See “First Aid Measures” and “Stability and Reactivity”

Major Water Spill

- Eliminate any sources of ignition.
- Warn occupants and shipping in downwind areas of possible fire and explosion hazard.
- Notify the port or relevant authority and keep the public away from the area.
- Shut off the source of the spill if possible and safe to do so.
- Confine the spill if possible.
- Remove the product from the surface by skimming or with suitable absorbent material.
- Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.
- See “First Aid Measures” and “Stability and Reactivity”.

7. HANDLING AND STORAGE

Precautions for safe handling

This product is flammable. Do not open near open flame, sources of heat or ignition. No smoking. Keep container closed. Handle containers with care. Open slowly to control possible pressure release. Use grounding leads to avoid discharge (electrical spark).

Conditions for safe storage

Store in a cool, dry place away from direct sunlight. Do not pressurise, cut, heat or weld containers - residual vapours are flammable. This product is flammable and will fuel a fire in progress.

Incompatible materials

Natural Rubber, Butyl Rubber, EPDM, Polystyrene

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

Exposure Standards

The time weighted average concentration (TWA) for this product is:983 mg/m3 (400 ppm), which means the highest allowable exposure concentration in an eight-hour day for a five-day working week. The short-term exposure limit (STEL) is:1230 mg/m3 (500 ppm), which is the maximum allowable exposure concentration at any time.

The Toxic Exposure Limit in Air – TEL (Air): N/A

The Toxic Exposure Limit for Skin – TEL (Skin): N/A

The Toxic Exposure Limit for Drinking Water – TEL (Drinking Water): N/A

The Environmental Exposure Limit in Air – EEL (Air): Not established

The Environmental Exposure Limit for Water – EEL (Water): Not established

Biological limit values

None established

Engineering Controls: Ventilation

The use of local exhaust ventilation is recommended to control process emissions near the source. Laboratory samples should be handled in a fume hood. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment.

Personal Protective Equipment

Respiratory Protection: Where concentrations in air may exceed the limits described in the National Exposure Standards, it is recommended to use a half-face filter mask to protect from overexposure by inhalation. A type "A" filter material is considered suitable for this product.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/ Body Protection: Always wear long sleeves and long trousers or coveralls, and enclosed footwear or safety boots when handling this product. It is recommended that chemical resistant gloves be worn when handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of measurement	Typical value
Appearance	-	Clear, colourless liquid
Boiling Point/ Range	°C	82
Flash Point	°C	12
Density @ 15°C	g/ml	0.785
Vapour Pressure @ 20°C	kPa	4.3
Vapour Density @ 20°C	kPa	> 1.00
Autoignition Temperature	°C	> 350
Explosive Limits in Air	%	1.8 - 12
Viscosity @ 20°C	cSt	Not applicable
Percent Volatiles	%	100
Solubility with Water	% w/w	100

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Product Data Sheet.

10. STABILITY AND REACTIVITY

Chemical Stability

Stable under normal conditions of use

Conditions to avoid

Sources of heat and ignition, open flames.

Hazardous decomposition products

No decomposition products except on burning. See "Fire Fighting Measures".

Hazardous reactions

Stored mixtures with MEK produce explosive peroxides. Increased rate of peroxide formation with Isobutanol. Peroxide production sharply decreases the Autoignition Temperature. Violent, explosive reactions with metal oxides, oxidising agents, halogenate

11. TOXICOLOGICAL INFORMATION

Acute Effects

Ingestion

The single lethal dose for humans is approx. 250ml, however 100ml can be fatal. Symptoms of overexposure include: flushing, pulse rate decrease, blood pressure lowering, anaesthesia, narcosis, headaches, dizziness, mental depression, hallucinations, distorted perceptions, respiratory depression, nausea or vomiting, coma.

Eye Contact

This product is irritating to eyes and can cause corneal burns.

Skin Contact

This product is irritating to the skin with prolonged exposure. It may result in dryness and cracking.

Inhalation

This product is irritating to the respiratory tract. In high doses, this product has narcotic effects. At concentrations of 400ppm or higher, the product may induce a mild narcosis, with transient effects. See Ingestion Effects.

Chronic Effects

A slight tolerance to this product can be acquired. This product is easily absorbed by the skin yielding a narcotic action. Overexposure may not be immediately determined for those who have built a tolerance. Abuse of this product will be harmful. People with pre-existing liver or kidney conditions must avoid unnecessary product exposure (metabolises similarly to ethanols).

Other Health Effects Information

Questionable carcinogen. Mutation data reported. Experimental teratogenic and reproductive effects.

Toxicological Information

2-propanol: 5045 mg/kg (oral, rat)

TDLo: 223 mg/kg (oral, human)

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Toxicity

Fish Toxicity (rainbow trout, goldfish, bluegill):	LC_{50}(96hr): Based on data for a similar component or preparation, this product is expected to be toxic to aquatic organisms.
Daphnia Magna EC_{50} (48 hr):	Long term adverse effects to aquatic organisms are possible if continuous exposure is maintained.

Persistence/ degradability

This product can degrade rapidly in air. This substance is expected to be removed in wastewater treatment. Based upon data for a similar components or estimated data, this product is expected to biodegrade rapidly and be 'readily' biodegradable according to OECD guidelines.

Mobility

This product is highly volatile and will rapidly evaporate to the air if released into the water

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Empty packaging should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. Care should be taken to ensure compliance with national and local authorities. Packaging may still contain fumes and vapours that are flammable and harmful. Ensure that empty packaging is allowed to dry.

Special Precautions for Landfill or Incineration

This product is NOT suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers. This product is ashless and can be burned directly in appropriate equipment.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.	1219	UN No.	1219	UN No.	1219
Proper Shipping Name	Isopropyl Alcohol	Proper Shipping Name	Isopropyl Alcohol	Proper Shipping Name	Isopropyl Alcohol
DG Class	3.1B	DG Class	3.1B	DG Class	3.1B
Sub. Risk	None	Sub. Risk	None	Sub. Risk	None
Pack Group	II	Pack Group	II	Pack Group	II
Hazchem	2[Y]E				

Dangerous Goods Segregation

This product is classed as Dangerous Goods Class 3, packing group II. Please consult the transport code for information.

15. REGULATORY INFORMATION

Country/ Region: Australia

Inventory: AICS

Status: Listed

Poisons Schedule: S4

16. OTHER INFORMATION

Reasons for Issue:

Abbreviations:

AICS: Australian Inventory of Chemical Substances

CAS Number: Chemical Abstracts Number

IARC: International Agency for Research on Cancer

NOHSC: National Occupational Health and Safety Council

References:

- Supplier Material Safety Data Sheets
- *Sax's Dangerous Properties of Industrial Materials*, Richard J. Lewis Snr., pub. Canada (2000)

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses, but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product.