



Safety Data Sheet

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1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name : ECP LTD
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Product	Tertiary Butanol		Code	3340
CAS#	HSNO#	UN #	DG Class/es	Packing group #
78-83-1	HSR001097	1212	3	III

Recommended use: Laboratory Investigations

2. Hazards Identification

2.1 GHS Classification

Flammable Liquids (Category C)
Acute toxicity, Oral (Category E)
Acute toxicity, Inhalation (Category E)
Acute toxicity, Dermal (Category E)
Skin irritation (Category A)
Serious eye damage (Category A)
Aquatic toxicity (Acute or Chronic) (Category D)

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram



Signal word : **Danger**

Hazard statement(s)

H226 Flammable liquid and vapour.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H333 May be harmful if inhaled.
H401 Toxic to aquatic life.

Precautionary statement(s)

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

- P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P264 Wash skin thoroughly after handling.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P312 IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/ physician.
- P332 + P313 If skin irritation occurs: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

- P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal

- P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards – none

Hazard Classification

Australia:
 Classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.
 Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

New Zealand:
 Classified as Hazardous according to the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.
 Classified as Dangerous Goods for transport according to the New Zealand Standard NZS 5433:1999 Transport of Dangerous Goods on Land.

HSNO Classification:
 3.1C - Flammable Liquid: Medium Hazard.
 6.1E - Substance that is acutely toxic.
 6.3B - Substance that is irritating to the skin.
 6.4A - Substance that is irritating to the eye.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	2-Methylpropan-2-ol	75-65-0	100 %

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh area. Keep at rest until recovered. If symptoms persist seek medical attention.

Ingestion	Do NOT induce vomiting. Wash out mouth and lips thoroughly with water. Seek medical attention.
Skin	Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.
Eye	If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed off completely. Seek medical attention.
First Aid Facilities	Eye wash and normal washroom facilities.
Advice to Doctor	Treat symptomatically

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Extinguish fire with foam, dry chemical powder, or carbon dioxide.

Hazards from Combustion Products Under fire conditions this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.

Specific Hazards Flammable liquid. Shut off any leak if safe to do so and remove sources of re-ignition. Vapour/air mixtures may ignite explosively. Vapours are heavier than air and may travel long distances to an ignition source and flash back. Heating can cause expansion or decomposition leading to violent rupture of containers. Runoff to sewer may create fire or explosion hazard.

Hazchem Code 3[Y]

Precautions in connection with Fire Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) and full protective clothing to prevent exposure to vapors, fumes or products of combustion. Water spray may be used to cool down heat-exposed containers. If safe to do so, remove containers from path of fire. Do not allow run-off from fire fighting to enter drains or water courses.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Wear appropriate personal protective equipment and clothing to minimize exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible, contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water authorities and EPA in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling Avoid contact with skin and eyes. Wear protective clothing, impervious gloves and safety glasses. Use only in well ventilated areas. Avoid breathing vapour or spray mist. Keep containers closed when not in use. Do not empty into drains. Maintain a high level of personal hygiene when using the product, that is, always wash hands after handling, and before eating, drinking, smoking or using the toilet facilities.

Conditions for Safe Storage Store in a cool, dry, well-ventilated area away from sources of ignition, oxidizing agents, foodstuffs, and clothing. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. For information on the design of the storeroom, reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids. Reference should also be made to all applicable national and local regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards Australian National Occupational Health And Safety Commission (NOHSC) Exposure Standards:
Substance TWA STEL Notices
ppm mg/m³ ppm mg/m³
2-Methylpropan-1-ol 50 152 - - -
New Zealand Occupational Safety and Health Service (OSH) Workplace Exposure Standards:
Substance TWA STEL Notices
ppm mg/m³ ppm mg/m³
2-Methylpropan-1-ol 50 152 - - -

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.
STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

Engineering Controls Provide adequate ventilation to keep airborne levels below the exposure limits. Where Vapors or mists are generated, a flameproof local exhaust ventilation system, drawing vapors/mists away from workers' breathing zone, is required.

Respiratory Protection If engineering controls are not effective in controlling airborne exposure, then respiratory protective equipment should be used. Final choice of appropriate breathing protection is dependent on actual airborne concentrations, and the type of breathing protection required will vary according to individual circumstances. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.

Eye Protection Safety glasses with side shields, or chemical goggles as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Hand Protection Wear gloves of impervious material such as laminated film or PVC. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1:

Occupational protective gloves - Selection, use and maintenance.

Body Protection Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist. Industrial clothing should conform to the specifications detailed in AS/NZS 2919: Industrial clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colourless liquid with a sweet, musty Odour.
Melting Point	-108°C
Boiling Point	108°C
Solubility in Water	Slightly soluble
Solubility in Organic Solvents	Soluble in alcohol, ether, and most other organic solvents.
Specific Gravity	0.805
Vapour Pressure	10 mmHg at 21.7°C
Vapour Density (Air=1)	2.55 (Air=1)
Evaporation Rate	>1 (n-Butyl acetate=1)
Flash Point	28°C
Flammability	Flammable liquid.
Auto-Ignition Temperature	420°C
Flammable Limits - Lower	1.6%
Flammable Limits - Upper	10.9%

10. STABILITY AND REACTIVITY

Chemical Stability Stable under normal conditions of storage and handling.

Conditions to Avoid Avoid contact with hot surfaces, open flame, sparks, and other ignition sources.

Incompatible Materials Oxidizing agents, inorganic acids, aldehydes, isocyanates.

Hazardous Decomposition Products Thermal decomposition may result in the release of toxic and/or irritating fumes including carbon monoxide and carbon dioxide.

Hazardous Polymerization Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information For Isobutanol:
LD50 (Oral, Rat): 2,460 mg/kg
LD50 (Dermal, Rabbit): 3,400 mg/kg

SKIN (Rabbit): Moderate irritant
EYES (Rabbit): Severe irritant

Inhalation	Irritating to respiratory system. Inhalation of vapors may irritate the respiratory system and cause CNS depression, drowsiness, and dizziness.
Ingestion	Ingestion of this product may irritate the gastric tract, causing nausea and vomiting.
Skin	Irritating to skin. May cause redness and defatting. Repeated exposure may cause skin dryness and cracking.
Eye	Risk of serious damage to eyes. On eye contact this product will cause tearing, stinging, blurred vision, and redness. It can cause corneal damage if not washed off immediately.
Chronic Effects	May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma, and possible death due to respiratory failure. May cause headache, muscle weakness, incoordination, and confusion. Prolonged or repeated skin contact may cause defatting leading to dermatitis.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Not available
Persistence / Degradability	Not available
Mobility	Not available
Bioaccumulative Potential	Not available
Environment Protection	Do not allow product to enter drains, waterways, or sewers.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations	The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.
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14. TRANSPORT INFORMATION

Transport Information Australia:

This material is classified as a Class 3 (Flammable Liquid) Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Dangerous goods of Class 3 (Flammable Liquid) are incompatible in a placard load with any of the following:

- Class 1, Explosive
- Class 2.1, Flammable Gas, if both the Class 3 and Class 2.1 dangerous goods are in bulk
- Class 2.3, Toxic Gas

- Class 4.2, Spontaneously Combustible Substance
- Class 5.1, Oxidising Agent
- Class 5.2, Organic Peroxide
- Class 6.1, Toxic and Class 6.2 Infectious Substances, if the Class 3 dangerous goods are nitromethane
- Class 7, Radioactive Substance

New Zealand:

This material is classified as a Class 3 - Flammable Liquid according to NZS 5433:1999 Transport of Dangerous Goods on Land.

Must not be loaded in the same freight container or on the same vehicle with:

- Class 1, Explosives
- Class 2.1, Flammable gases
- Class 2.3, Toxic gases
- Class 4.2, Spontaneously combustible substances
- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides or
- Class 7, Radioactive materials unless specifically exempted.

Must not be loaded with in the same freight container; and on the same vehicle must be separated horizontally by at least 3 metres unless all but one are packed in separate freight containers with:

- Class 4.3, Dangerous when wet substances
- Goods of packing group II or III may be loaded in the same freight container or on the same vehicle if transported in segregation devices with:
- Class 4.2, Spontaneously combustible substances
 - Class 4.3, Dangerous when wet substances
 - Class 5.1, Oxidising substances
 - Class 5.2, Organic peroxides

U.N. Number	1212
Proper Shipping Name	Butanols
DG Class	3
Hazchem Code	3[Y]
Packaging Method	3.8.3
Packing Group	III
EPG Number	3A1
IERG Number	17

15. REGULATORY INFORMATION

Regulatory Information	<p>Australia:</p> <p>Classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.</p> <p>Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).</p>
Poisons Schedule	Not Scheduled
National and or International Regulatory Information	<p>New Zealand:</p> <p>Classified as Hazardous according to the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.</p> <p>ERMA Approval Code: HSR001097; 1-Propanol, 2-methyl-</p>

Hazard Category Irritant

AICS (Australia) All constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, the information is not a guarantee expressed or implied, with respect to such information, and we assume no liability resulting from its use. Anyone using the chemical described here should ensure that he or she has the appropriate training and has the expertise and any equipment required for safe handling. If clarification or further information is required, please contact ECP Ltd or refer to the official handler of dangerous goods within your own company. The user should also make their own investigations to determine the suitability of the product for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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