SAFETY DATA SHEET

Classified as hazardous according to criteria of EPA New Zealand

Section 1 - Identification

Product Name **2-Methylpropan-2-ol**

Product Code	**ACR10771, ACR39069, AJA113, AJA16, ALF033278, ALF041470, FSBB/5250, FSBB/5251, TCH33508**
Address	Thermo Fisher Scientific New Zealand Ltd 244 Bush Road, Albany, Auckland, New Zealand
Emergency Tel.	**CHEMTREC®** **09 980 6780 or +64 9 980 6780**
Telephone / Fax Numbers	Tel: 09 980 6700 Fax: 09 980 6788
E-mail address	NZinfo@thermofisher.com

Recommended Use Laboratory chemicals.

Section 2 - Hazard(s) Identification

Classification under Work Safe New Zealand

3.1B - Flammable liquids: high hazard
6.1E - Substances that are acutely toxic (Oral)
6.4A - Substances that are irritating to the eye
6.1D - Substances that are acutely toxic (Inhalation)
6.3B - Substances that are mildly irritating to the skin
6.1E - Substances that are acutely toxic (Inhalation)

Classified as hazardous according to criteria of EPA New Zealand

HSNO Approval Number **HSR001099**

GHS Classification

Physical hazards

Flammable liquids	Category 2

Health hazards

Acute Oral Toxicity	Category 5
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 3
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

Environmental hazards
Based on available data, the classification criteria are not met

Label Elements

Signal Word **Danger**

Hazard Statements
H225 - Highly flammable liquid and vapor
H303 - May be harmful if swallowed
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H226 - Flammable liquid and vapor
H316 - Causes mild skin irritation

Precautionary Statements
P262 - Do not get in eyes, on skin, or on clothing
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P242 - Use non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P370 + P378 - In case of fire: Use CO2, dry chemical or foam for extinction
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/ container to an approved waste disposal plant

Other information
No information available

Section 3 - Composition and Information on Ingredients

Component	CAS-No	Weight %
tert-Butyl alcohol	75-65-0	100

Section 4 - First Aid Measures

Inhalation Remove to fresh air.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

	clothes and shoes.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
First Aid Facilities	Eyewash, safety shower and washroom.
Most important symptoms and effects	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media
Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
No information available.

Hazardous Combustion Products
Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.
Special protective equipment and precautions for fire fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 - Accidental Release Measures

Emergency procedures
Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions
See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up
Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
Reference to Other Sections
Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling
Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Conditions for Safe Storage, Including any Incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals
AS 1940-2004 - The storage and handling of flammable and combustible liquids does not apply to this product. It is covered by the ADG Code Class 3 exclusion clause (i.e. SP No 144 An aqueous solution containing not more than 24% alcohol by volume is not subject to the ADG Code, AS1940 section 1.2). Refer to AS1940 to ensure compliance of individual storage and handling facilities.

Section 8 - Exposure Controls and Personal Protection

Exposure limits

NZ - Workplace Exposure Standards and Biological Exposure Indices (6th edition). New Zealand Department of Labor

Component	New Zealand WEL
tert-Butyl alcohol	TWA: 100 ppm TWA: 303 mg/m³ STEL: 150 ppm STEL: 455 mg/m³

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Nitrile rubber, Neoprene, Natural rubber, PVC.	See manufacturers recommendations	-	AS/NZS 2161.1	(minimum requirement)

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Repiratory Protection Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of repiratory protective devices

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387 (or AUS/NZ equivalent)

Recommended half mask:- Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent)
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No information available.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Clear
Physical State Liquid

Odor No information available
Odor Threshold No data available
pH 7
Melting Point/Range 25 °C / 77 °F
Softening Point No data available

Boiling Point/Range	83 °C / 181.4 °F	
Flash Point	11 °C / 51.8 °F	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	Not applicable	Liquid
Water Solubility	No information available	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
tert-Butyl alcohol	0.35	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	Vapors may form explosive mixtures with air
Oxidizing Properties	No information available	

Other information

Molecular Formula	C4 H10 O
Molecular Weight	74.12

Section 10 - Stability and Reactivity

Reactivity None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition.

Hazardous Decomposition Products None under normal use conditions.

Hazardous Polymerization No information available.

Section 11 - Toxicological Information

Information on Toxicological Effects

Product Information

(a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
tert-Butyl alcohol	>3100 mg/kg (Rat)	>2000 mg/kg (Rabbit)	>31 mg/L/4h (Rat)

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result

tert-Butyl alcohol 75-65-0 (100)	OECD Test Guideline 406 Skin sensitization	guinea pig	non-sensitising

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
tert-Butyl alcohol 75-65-0 (100)	AMES test	in vitro	negative

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Section 12 - Ecological Information

Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
tert-Butyl alcohol	LC50 >961 mg/L/96h (Pimephales promelas)	EC50 933 mg/L 48 h	EC50 1000 mg/L 72 h	EC50 > 10000 mg/L 17 h

Persistence and Degradability No information available

Persistence Persistence is unlikely, based on information available.

Bioaccumulative Potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
tert-Butyl alcohol	0.35	1.09

Mobility The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste from Residues/Unused Products Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information Disposal agencies or waste contractors must comply with the New Zealand Hazardous Substances (Disposal) Regulations . Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.

Section 14 - Transport Information

IMDG/IMO

UN-No	UN1120
Proper Shipping Name	BUTANOLS
Technical Shipping Name	2-Methylpropan-2-ol
Hazard Class	3
Packing Group	II

NZS 5433:2012

UN-No	UN1120
Proper Shipping Name	BUTANOLS
Technical Shipping Name	2-Methylpropan-2-ol
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1120
Proper Shipping Name	BUTANOLS
Technical Shipping Name	2-Methylpropan-2-ol
Hazard Class	3
Packing Group	II

Environmental hazards	No hazards identified
Special Precautions	No special precautions required
Additional information	None known

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	HSNO Approval Number
tert-Butyl alcohol	HSR001099

International Inventories X = listed

Component	NZIoC	AICS	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	KECL
tert-Butyl alcohol	X	X	200-889-7	-	X	X	-	X	X	X	KE-24895

Prohibition or notification/licensing requirements Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

Section 16 - Other Information

This safety data sheet complies with the requirements of WorkSafe New Zealand Regulations

Legend

AICS - Australian Inventory of Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - Chinese Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
NZIoC - New Zealand Inventory of Chemicals
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
CAS - Chemical Abstracts Service
ACGIH - American Conference of Governmental Industrial Hygienists
Predicted No Effect Concentration (PNEC)

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
MARPOL - International Convention for the Prevention of Pollution from Ships
ADG Australian Code for the Transport of Dangerous Goods by Road and Rail
NZS 5433:2012 - Transport of Dangerous Goods on Land
OECD - Organisation for Economic Co-operation and Development
LD50 - Lethal Dose 50%
LC50 - Lethal Concentration 50%
EC50 - Effective Concentration 50%
ATE - Acute Toxicity Estimate
WEL - Workplace Exposure Limit
RPE - Respiratory Protective Equipment
DNEL - Derived No Effect Level
NOEC - No Observed Effect Concentration
POW - Partition coefficient Octanol:Water
BCF - Bioconcentration factor
vPvB - very Persistent, very Bioaccumulative
PBT - Persistent, Bioaccumulative, Toxic
VOC (volatile organic compound)

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Revision Date	04-Jul-2020
Revision Summary	Not applicable.

Disclaimer

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End of Safety Data Sheet