

Australian statement of hazardous nature: Classified as hazardous according to criteria of Safe Work Australia

Section 1 - Identification

Product Name 2-n-Butoxyethanol, CP

CAS No 111-76-2

Synonyms Butyl cellosolve; Ethylene glycol monobutyl ether, Butyl glycol

Product Code W00342

Address ThermoFisher Scientific Australia Pty Ltd

5 Caribbean Drive, Scoresby VICTORIA 3179, Australia

Emergency Tel. CHEMTREC®

03 9757 4559 or +613 9757 4559

Telephone / Fax Numbers Tel: 1300 735 292

Fax: 1800 067 639

E-mail address ANZinfo@thermofisher.com

Recommended Use Laboratory chemicals.

Uses advised against This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National

Code of Practice for Chemicals of Security Concern.

Section 2 - Hazard(s) Identification

Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

Physical hazards

No hazards identified

Health hazards

Acute Oral ToxicityCategory 4Acute Inhalation Toxicity - VaporsCategory 3Skin Corrosion/IrritationCategory 2Serious Eye Damage/Eye IrritationCategory 2

Environmental hazards

No hazards identified

Label Elements

ALFAAW00342 Version 1 13-Aug-2024 Page 1/11



Signal Word

Danger

Hazard Statements

H302 - Harmful if swallowed

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H331 - Toxic if inhaled

Combustible liquid

Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P340 - IF INHALED: Remove person to fresh air and keep 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

P311 - Call a POISON CENTER or doctor

P330 - Rinse mouth

P362 + P364 - Take off contaminated clothing and wash it before reuse

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

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

Other information

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
2-Butoxyethanol	111-76-2	<100

Section 4 - First Aid Measures

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

ALFAAW00342 Version 1 13-Aug-2024 Page 2/11

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In

the case of contact with eyes, rinse immediately with plenty of water and seek medical

advice.

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Self-Protection of the First Aider Use personal protective equipment as required.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and

effects

None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness,

tiredness, nausea and vomiting

Notes to Physician Treat symptomatically. Symptoms may be delayed.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

Hazardous Decomposition Products

Carbon monoxide (CO), Carbon dioxide (CO2), peroxides.

Specific Hazards Arising from the Chemical

Combustible material. Containers may explode when heated. Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Vapors may form explosive mixtures with air. Keep product and empty container away from heat and sources of ignition. Risk of ignition.

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. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6 - Accidental Release Measures

Emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up

Clean-up methods - small spillage

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

Clean-up methods - large spillage

Typically only supplied is small quantiites as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

ALFAAW00342 Version 1 13-Aug-2024 Page 3 / 11

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition.

Conditions for Safe Storage, Including any Incompatibilities

Keep away from heat, sparks and flame. Protect from light. Protect from moisture. Reacts with air to form peroxides. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Keep away from heat. Flammables area.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals AS 1940-2004 - The storage and handling of flammable and combustible liquids

Section 8 - Exposure Controls and Personal Protection

Exposure limits

AUS - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)] Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]

updated in August, 2005. Safe Work Australia **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

DE - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

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

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
2-Butoxyethanol	STEL: 50 ppm	TWA: 25 ppm	TWA: 20 ppm	STEL: 50 ppm 15 min	TWA: 10 ppm (8
	STEL: 242 mg/m ³	TWA: 121 mg/m ³		STEL: 246 mg/m ³ 15	Stunden). AGW -
	TWA: 20 ppm	Skin		min	exposure factor 2
	TWA: 96.9 mg/m ³			TWA: 25 ppm 8 hr	TWA: 49 mg/m ³ (8
				TWA: 123 mg/m ³ 8 hr	Stunden). AGW -
				Skin	exposure factor 2
					TWA: 10 ppm (8
					Stunden). MAK applies
					for the sum of the
					concentrations of
					2-Butoxyethanol and its
					Acetate in air
					TWA: 49 mg/m ³ (8
					Stunden). MAK applies
					for the sum of the
					concentrations of
					2-Butoxyethanol and its
					Acetate in air
					Höhepunkt: 20 ppm
					Höhepunkt: 98 mg/m ³
					Haut

Biological limit values

UK - Biological Monitoring Guidance Values provided by the UK's Health and Safety Executive (HSE) Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended) and EH40/2005.

Component	Australia	New Zealand	European Union	United Kingdom	Germany
2-Butoxyethanol				Butoxyacetic acid: 240	Butoxyacetic acid (after
				mmol/mol creatinine	hydrolysis): 150 mg/g
				urine post shift	Creatinine urine (for
					long-term exposures: at

ALFAAW00342 Version 1 13-Aug-2024 Page 4 / 11

		the end of the shift after
		several shifts)
		Butoxyacetic acid (after
		hydrolysis): 150 mg/g
		Creatinine urine (end of
		shift)

Exposure Controls Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

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
Butyl rubber	> 480 minutes	0.5 mm	AS/NZS 2161	As tested under EN374-3 Determination of
Viton (R)	> 480 minutes	0.4 mm		Resistance to Permeation by Chemicals
Nitrile rubber				•
Neoprene gloves	> 480 minutes	0.45 mm		
Nitrile rubber	> 480 minutes	0.56 mm		

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 When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area

and clothing.

Environmental exposure controls No information available.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

AppearanceLight yellowPhysical StateLiquid

Odor Slight

Odor Threshold No data available No information available

ALFAAW00342 Version 1 13-Aug-2024 Page 5/11

Melting Point/Range -70 °C / -94 °F **Softening Point** No data available 171 °C / 339.8 °F **Boiling Point/Range** Flash Point 62 °C / 143.6 °F

Method - Pensky Martens Closed Cup (ASTM D93, BS EN 22719, BS 2000 Part 404, IP 404, ISO 2719,

AS/NZS 2106)

Liquid

(Air = 1.0)

Dynamic

explosive air/vapour mixtures possible

No data available **Evaporation Rate** Not applicable Flammability (solid,gas) **Explosion Limits**

Lower 1.1 vol% **Upper** 10.6 vol%

0.8 hPa @ 20°C **Vapor Pressure Vapor Density** No data available

Specific Gravity / Density @ 20 °C 0.901 **Bulk Density** Not applicable Liquid Water Solubility Miscible

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow 2-Butoxyethanol 0.81

230 °C / 446 °F **Autoignition Temperature Decomposition Temperature** No data available 5.31 mPa.s at 20 °C **Viscosity**

Explosive Properties

Oxidizing Properties Not oxidising

Other information

Molecular Formula C6 H14 O2 **Molecular Weight** 118.18

Section 10 - Stability and Reactivity

None known, based on information available Reactivity

Stability Stable under normal conditions.

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

Extremes of temperature and direct sunlight, Exposure to air or moisture over prolonged

periods, Heating in air.

Incompatible Materials Strong oxidizing agents, Bases, Metals, Aluminium, . Zinc

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO₂), peroxides.

Hazardous Polymerization Hazardous polymerization does not occur.

Section 11 - Toxicological Information

Information on Toxicological Effects

Product Information

(a) acute toxicity;

Oral Category 4

Dermal Based on available data, the classification criteria are not met

Inhalation Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Butoxyethanol	1746 mg/kg (Rat)	LD50 > 2000 mg/kg (Guinea pig)	LC50 = 486 ppm (Rat) 4 h

ALFAAW00342 Version 1 Page 6/11 13-Aug-2024

OCED 402 LC50 = 450 ppm (Rat) 4 h

(b) skin corrosion/irritation; Category 2
Test method OECD 405
Test species rabbit

Observational endpoint Irritating to skin

(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
2-Butoxyethanol	Guinea Pig Maximisation Test	guinea pig	 non-sensitising
111-76-2 (<100)	(GPMT)		-

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

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

The table below indicates whether each agency has listed any ingredient as a carcinogen

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

Reproductive Effects None known

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

(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

Other Adverse Effects No information available

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting delayed

Section 12 - Ecological Information

Ecotoxicity effects . Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
2-Butoxyethanol	1490 mg/L LC50 96 h	1550 mg/l EC50 48 hr	1840 mg/l EC50 72 hr	
·	2950 mg/L LC50 96 h	>1000 mg/L EC50 48 h	_	
		1698 - 1940 mg/L EC50		
		24 h		

Persistence and Degradability
Persistence
Readily biodegradable
Persistence is unlikely.

Component	Degradability
2-Butoxyethanol	90% (28d) OECD 301B
111-76-2 (<100)	

Bioaccumulative Potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)	
2-Butoxyethanol	0.81	No data available	

MobilityThe product is water soluble, and may spread in water systems. : Will likely be mobile in the environment due to its water solubility. Spillage unlikely to penetrate soil: Highly mobile

the environment due to its water solubility. Spillage unlikely to penetrate soil: Highly mo in soils

ALFAAW00342 Version

Version 1 13-Aug-2024 Page 7/11

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance 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.

Other Information

Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

Section 14 - Transport Information

IMDG/IMO

UN-No UN2810

Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.

Technical Shipping Name 2-Butoxyethanol

Hazard Class 6.1
Packing Group

ADG

UN-No UN2810

Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.

Technical Shipping Name 2-Butoxyethanol

Hazard Class 6.1
Packing Group

IATA

UN-No UN2810

Proper Shipping Name TOXIC LIQUID, ORGANIC, N.O.S.

Technical Shipping Name 2-Butoxyethanol

Hazard Class 6.1
Packing Group

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

National Regulations Australia

See section 8 for national exposure control parameters.

ALFAAW00342 Version 1 13-Aug-2024 Page 8 / 11

Standard for the Uniform Scheduling of Medicines and Poisons

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
2-Butoxyethanol - 111-76-2	Schedule 6 listed - except in plant growth regulator preparations containing <=20% of such
	substances, or in other preparations containing <=10% of such substances Schedule 6 listed - except
	when separately specified in these Schedules, or in preparations containing <=10% of such
	substances

Australian Industrial Chemicals Introduction Scheme (AICIS)

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
2-Butoxyethanol - 111-76-2	Present	Specific information requirement: Obligations to provide information apply. You must tell us within 28 days if the circumstances of your importation or manufacture (introduction) are different to those in our assessment.

Australian - Illicit Drug Precursors/Reagents Substance List

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

Chemicals of Security Concern

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

National pollutant inventory Not applicable

Prohibition or notification/licensing requirements

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

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
2-Butoxyethanol	Χ	Х	203-905-0	-	X	Х	-	Х	Χ	Χ	Х	KE-04134

Legend: X - Listed. '-' - Not Listed. KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

International Regulations

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

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

Rotterdam Convention (PIC) Not applicable

Basel convention on the control of transboundary movements of hazardous wastes and their dispoal Not applicable.

ALFAAW00342 Version 1 13-Aug-2024 Page 9 / 11

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
2-Butoxyethanol	111-76-2	Listed	Not applicable	Not applicable	Not applicable

Authorisation/Restrictions according to EU REACH

Component	. ,	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	
2-Butoxyethanol	-	Use restricted. See entry 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Section 16 - Other Information

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

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

 \mathbf{MARPOL} - International Convention for the Prevention of Pollution from Ships

NZS 5433:2020 - Transport of Dangerous Goods on Land

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% WEL - Workplace Exposure Limit DNEL - Derived No Effect Level

POW - Partition coefficient Octanol:Water **vPvB** - very Persistent, very Bioaccumulative

VOC - (Volatile Organic Compound)

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)

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

LC50 - Lethal Concentration 50% ATE - Acute Toxicity Estimate

RPE - Respiratory Protective Equipment **NOEC** - No Observed Effect Concentration

BCF - Bioconcentration factor

PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

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.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts. Chemical incident response training.

Revision Date 13-Aug-2024 Revision Summary Initial Release.

This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of

ALFAAW00342 Version 1 13-Aug-2024 Page 10 / 11

Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

ALFAAW00342 Version 1 13-Aug-2024 Page 11 / 11