

SAFETY DATA SHEET

1. Identification

Product identifier: SURFYNOL® 104 BC

Chemical name: Acetylenic diol in solvent

Other means of identification

Recommended use: Industrial use

Recommended restrictions: None known.

Manufacturer/Importer/Distributor Information

Company Name : Evonik Australia Pty Ltd
Suites 33&37
1 Ricketts Road
Mt Waverley, VIC 3149
Australia

Telephone : +61 3 8581 8400

Fax : +61 3 9544 5002

E-mail : productsafety-sp@evonik.com

Emergency telephone number:

24-Hour Health : +61 2 9037 2994

Emergency : +1 703 527 3887 (CHEMTREC WORLD)

2. Hazard(s) identification

Classification according to GHS

Physical Hazards

Flammable liquids Category 4

Health Hazards

Acute toxicity (Oral) Category 4

Acute toxicity (Inhalation - vapor) Category 3

Skin Corrosion/Irritation Category 2

Serious Eye Damage/Eye Irritation Category 1

Skin sensitizer Category 1

Environmental Hazards

Acute hazards to the aquatic environment Category 3

Chronic hazards to the aquatic environment Category 3

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Combustible liquid.
Toxic if inhaled.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instructions on this label). Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards: None known.

3. Composition/information on ingredients

Chemical name:

Acetylenic diol in solvent

Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
2-butoxyethanol	No data available.	111-76-2	50%
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	No data available.	126-86-3	49.9975%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The exact concentration has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General information:	Remove soiled or soaked clothing immediately
Inhalation:	fresh air supply, consult a doctor if feeling unwell.
Skin Contact:	In case of contact with skin wash off with soap and water. If skin irritation persists, call a physician.
Eye contact:	In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice
Ingestion:	Thoroughly clean the mouth with water In case of discomfort: Supply with medical care.
Personal Protection for First-aid Responders:	No data available.

Most important symptoms and effects, both acute and delayed

Symptoms:	Risk of serious damage to eyes. Skin irritation
Hazards:	No data available.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.
-------------------	------------------------

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: foam, carbon dioxide, dry powder, water spray.

Unsuitable extinguishing media: High volume water jet.

Special hazards arising from the substance or mixture: In the event of fire the following can be released: - carbon dioxide, carbon monoxide Aldehydes. Under certain conditions of combustion traces of other toxic substances cannot be excluded

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No specific precautions.

Special protective equipment for fire-fighters: Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus and wear protective suit

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment.

Accidental release measures: No data available.

Methods and material for containment and cleaning up: Take up with absorbent material (eg sand, kieselguhr, universal binder) Dispose of absorbed material in accordance with the regulations.

Environmental Precautions: Do not allow to enter drains or waterways Prevent product from getting into subsoil/soil.

7. Handling and storage

Handling

Technical measures: No data available.

Local/Total ventilation: No data available.

Safe handling advice: Provide good ventilation of working area (local exhaust ventilation if necessary). Do not inhale gases/vapours/aerosols. Avoid contact with skin and eyes.

Contact avoidance measures: No data available.

Storage

Safe storage conditions: Keep container tightly closed in a cool, well-ventilated place. Keep away from direct sunlight. Do not store with acids or alkalis Do not store together with oxidizing agents.

Safe packaging materials: No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Form of exposure	Exposure Limit Values	Source
-------------------	------	------------------	-----------------------	--------

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

Biological Limit Values

Observe national threshold limit values.

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information:	No data available.
Eye/face protection:	Tightly fitting safety goggles
Hand Protection:	Additional Information: gloves made of chloroprene (CR, e.g. Neoprene), gloves made of nitril (NBR)
Other:	protective clothing
Respiratory Protection:	in case of formation of vapours/aerosols: Short term: filter apparatus, combination filter A-P2
Hygiene measures:	Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke. Remove soiled or soaked clothing immediately. Use skin protective preparation as preventive skin protection.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Pale yellow
Odor:	like menthol
Odor Threshold:	not measured
Freezing point:	not measured
Boiling Point:	> 140 °C/> 284 °F
Flammability:	not measured
Upper/lower limit on flammability or explosive limits	
Explosive limit - upper:	not measured

Explosive limit - lower:	not measured
Flash Point:	76 °C/169 °F
Auto-ignition temperature:	not measured
Decomposition Temperature:	not measured
pH:	5 - 7 100 g/l 10 % 25 °C/77 °F in Water

Viscosity

Dynamic viscosity:	not measured
Kinematic viscosity:	not measured
Flow Time:	No data available.

Solubility(ies)

Solubility in Water:	not measured
Solubility (other):	not measured
Partition coefficient (n-octanol/water):	not measured

Vapor pressure:	14.6 hPa 21 °C/70 °F
------------------------	-------------------------

Relative density:	not measured
--------------------------	--------------

Density:	0.9 g/cm ³ 21 °C/70 °F
-----------------	--------------------------------------

Bulk density:	No data available.
----------------------	--------------------

Relative vapor density:	not measured
--------------------------------	--------------

Other information

Explosive properties:	not measured
Oxidizing properties:	not oxidizing
Pyrophoric properties:	not measured
Metal Corrosion:	Not corrosive to metals
Evaporation Rate:	not measured

10. Stability and reactivity

Reactivity:	see section "Possibility of hazardous reactions".
Chemical Stability:	The product is stable under normal conditions.
Possibility of hazardous reactions:	No hazardous reactions with proper storage and handling
Conditions to avoid:	direct sunlight
Incompatible Materials:	Oxidizing agents. Acids. Alkalies.

Hazardous Decomposition Products:

None with proper storage and handling.

11. Toxicological information

Information on likely routes of exposure

Inhalation: Information on effects are given below.

Skin Contact: Information on effects are given below.

Eye contact: Information on effects are given below.

Ingestion: Information on effects are given below.

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50, Rat, 1,400 mg/kg

Components:

2-butoxyethanol LD 50, Guinea Pig, Female, Male, 1,414 mg/kg, OECD 401
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol LD 50, Rat, Female, Male, > 5,000 mg/kg

Dermal

Product: Not classified for acute toxicity based on available data.

Components:

2-butoxyethanol Not toxic after single exposure, No classification
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol LD 50, Rabbit, > 5,000 mg/kg, OECD 402

Inhalation

Product: LC 50, ATEmix, 4 h, 6 mg/l, Vapour

Components:

2-butoxyethanol LC 50, Acute toxicity estimate, 4 h, > 3 mg/l, Vapour
 Dust and mist, Not toxic after single exposure, No classification
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol LC 50, Rat, 4 h, > 5 mg/l, Dust and mist
 Vapour, Not toxic after single exposure, No data available.

Repeated dose toxicity

Product: No data available.

Components:

2-butoxyethanol LOAEL - Lowest Observable Adverse Effect Level, Rat, Female, Male, Oral, 90 day, continuous, 69 mg/kg bw/day, Target Organ(s): Liver, The mechanism of action is not relevant for humans.
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol NOAEL - No Observable Adverse Effect Level, Rat, Oral, daily, 500 mg/kg

Skin Corrosion/Irritation

Product: Irritating., (Rabbit), Irritating.

Components:

2-butoxyethanol Irritating., EC B.4, Rabbit, 4 h
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol Not irritating, OECD 404, Rabbit, 4 h

Serious Eye Damage/Eye Irritation

Product:	No data available.
Components:	
2-butoxyethanol	Irritating., OECD 405, Rabbit, 24 h
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	Risk of serious damage to eyes., US-EPA-method, Rabbit

Respiratory or Skin Sensitization

Product:	No data available.
Components:	
2-butoxyethanol	Sensitization test, OECD 406, Guinea Pig, Not a skin sensitizer.
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	Local Lymph Node Assay (LLNA), OECD 429, Mouse, Skin sensitizer

Carcinogenicity

Product:	No data available.
Components:	
2-butoxyethanol	No data available.
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	No data available.

Germ Cell Mutagenicity

No data available.

In vitro

Product:	No data available.
Components:	
2-butoxyethanol	gene mutation test, OECD 471: , negative Chromosomal aberration, OECD 473: , negative Genetic mutation in mammal cells, OECD 476: , negative
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	Ames test, OECD 471: , negative, Own study Chromosomal aberration, OECD 473: , negative, Own study gene mutation test, OECD 476: , negative, Own study

In vivo

Product:	No data available.
Components:	
2-butoxyethanol	In vivo micronucleus test, OECD 474, Intraperitoneal, Mouse, Male, negative In vivo micronucleus test, OECD 474, Intraperitoneal, Rat, Male, negative
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	No data available.

Reproductive toxicity

Product:	No data available.
Components:	
2-butoxyethanol	No data available.
2,4,7,9-Tetramethyldec-5-yne-4,7-diol	Oral

Specific Target Organ Toxicity - Single Exposure

Product:	No data available.
-----------------	--------------------

Components:

2-butoxyethanol No data available.
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Components:

2-butoxyethanol No data available.
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Aspiration Hazard

Product: Not classified

Components:

2-butoxyethanol Not classified
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol Not applicable

Information on health hazards
Other hazards

Product: No data available.

12. Ecological information

Ecotoxicity:
Acute hazards to the aquatic environment:
Fish

Product: No data available.

Components:

2-butoxyethanol LC 50, Oncorhynchus mykiss, 96 h, 1,474 mg/l OECD 203
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol LC 50, Pimephales promelas, 96 h, 36 mg/l OECD 203
 LC 50, Cyprinus carpio, 96 h, 42 mg/l OECD 203
 NOEC, Cyprinus carpio, 96 h, 10 mg/l OECD 203

Aquatic Invertebrates

Product: No data available.

Components:

2-butoxyethanol EC 50, Daphnia magna, 48 h, 1,550 mg/l OECD 202
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol EC 50, Daphnia magna, 48 h, 88 mg/l OECD 202
 EC 50, Daphnia magna, 48 h, 91 mg/l OECD 202
 NOEC, Daphnia magna, 48 h, 43 mg/l OECD 202

Toxicity to Aquatic Plants

Product: No data available.

Components:

2-butoxyethanol EC 50 (Raphidocelis subcapitata (freshwater green alga), 72 h): 911 mg/l (OECD 201)
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h): 15 mg/l (OECD 201)
 EC 10 (Algae (Pseudokirchneriella subcapitata), 72 h): 1.8 mg/l (OECD 201)

201)
ErC50 (Algae (*Pseudokirchneriella subcapitata*), 72 h): 82 mg/l (OECD 201)

Toxicity to microorganisms

Product: No data available.

Components:

2-butoxyethanol EC5, *Uronema parduczi*, 48 h, Approximate, 463 mg/l
2,4,7,9-Tetramethyldec-5-yne-4,7-diol EC 50, activated sludge, 3 h, Approximate, 630 mg/l, OECD 209

Toxicity to soil dwelling organisms

Product: No data available.

Components:

2-butoxyethanol No data available.
2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Toxicity to terrestrial organisms

Product: No data available.

Components:

2-butoxyethanol No data available.
2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Components:

2-butoxyethanol NOEC, *Oryzias latipes*, 14 d, ≥ 100 mg/l, OECD 204
2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Aquatic Invertebrates

Product: No data available.

Components:

2-butoxyethanol EC 50, *Daphnia magna*, 21 d, 297 mg/l, OECD 211
NOEC, *Daphnia magna*, 21 d, 100 mg/l, OECD 211
2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:

2-butoxyethanol NOEC (*Raphidocelis subcapitata* (freshwater green alga), 72 h): 88 mg/l (OECD 201)
2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Toxicity to microorganisms

Product: No data available.

Components:

2-butoxyethanol EC5, *Uronema parduczi*, 48 h, Approximate, 463 mg/l
2,4,7,9-Tetramethyldec-5-yne-4,7-diol EC 50, activated sludge, 3 h, Approximate, 630 mg/l, OECD 209

Toxicity to soil dwelling organisms**Product:** No data available.**Components:**

2-butoxyethanol No data available.

2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Toxicity to terrestrial organisms**Product:** No data available.**Components:**

2-butoxyethanol No data available.

2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Persistence and Degradability**Biodegradation****Product:** No data available.**Components:**

2-butoxyethanol 90.4 %, 28 d, OECD 301 B, The product is easily biodegradable., aerobic

2,4,7,9-Tetramethyldec-5-yne-4,7-diol 5 %, 28 d, OECD 301 B, The product is not biodegradable., aerobic
8 - 12 %, 60 d, OECD 301 B, The product is not biodegradable., aerobic
25.4 %, 57 d, OECD 302 A, The product is not biodegradable., aerobic**BOD/COD Ratio****Product:** No data available.**Components:**

2-butoxyethanol No data available.

2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Bioaccumulative potential**Bioconcentration Factor (BCF)****Product:** No data available.**Components:**2-butoxyethanol Does not bioaccumulate.
In view of the relatively low octanol / water coefficients of distribution (see Chapter 9), no significant accumulation of the substance in organisms is to be expected.

2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Partition Coefficient n-octanol / water (log Kow)**Product:** not measured**Components:**

2-butoxyethanol No data available.

2,4,7,9-Tetramethyldec-5-yne-4,7-diol 2.8, 22 °C, OECD 117, Yes

Mobility in soil:

Product No data available.
Components:
 2-butoxyethanol No data available.
 2,4,7,9-Tetramethyldec-5-yne-4,7-diol No data available.

Other adverse effects:

Other hazards

Product: Do not allow to enter soil, waterways or waste water canal.

13. Disposal considerations

Disposal methods: In accordance with local authority regulations, take to special waste incineration plant

Contaminated Packaging: If empty contaminated containers are recycled or disposed of, the receiver must be informed about possible hazards.

14. Transport information

ADG

UN number or ID number : UN 2810
 Proper shipping name : TOXIC LIQUID, ORGANIC, N.O.S.
 (2-butoxyethanol)
 Class : 6.1
 Packing group : III
 Labels : 6.1
 Hazchem Code : 2X

International Regulations

IATA-DGR

UN/ID No. : UN 2810
 Proper shipping name : Toxic liquid, organic, n.o.s.
 (2-butoxyethanol)
 Class : 6.1
 Packing group : III
 Labels : 6.1
 Packing instruction (cargo aircraft) : 663
 Packing instruction (passenger aircraft) : 655

IMDG-Code

UN number or ID number : UN 2810
 Proper shipping name : TOXIC LIQUID, ORGANIC, N.O.S.
 (2-butoxyethanol)
 Class : 6.1
 Packing group : III
 Labels : 6.1
 EmS Code : F-A, S-A
 Marine pollutant : no

Remarks : Stowage category A, SW2 - Clear of living quarters.,
Segregation group not required / not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. Regulatory information

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

16. Other information, including date of preparation or last revision

Issue Date: 11.06.2019

Version #: 1.5

Abbreviations and acronyms:

PY OEL: Paraguay. Decree No. 14.390/92 that approves the General Technical Regulation of Safety, Hygiene and Medicine in the Workplace, as amended
PY OEL / STEL: Short Term Exposure Limit (STEL):
PY OEL / TWA: Time Weighted Average (TWA):

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China;

IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further Information: No data available.

Revision Information: Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer: This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.