

2-Ethyl-1-Butanol Safety Data Sheet

Supersedes: 24/01/2024

Revision: 1.3

Revision date: 19/10/2024

SECTION 1: Identification

1.1 Identification

Product form	:	Substance
Substance name	:	2-Ethyl-1-butanol
CAS-No.	:	97-95-0
EC/ List	:	202-621-4
Index number	:	603-051-00-2
Formula	:	C ₆ H ₁₄ O
Molecular weight	:	102.17 g/mol
Synonyms	:	sec-Hexyl alcohol

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Chemical Intermediate
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1.3 Details of the supplier of the safety data sheet

Godavari Biorefineries Ltd.
45/47, Somaiya bhavan,
Mahatma Gandhi Road,
Fort, Mumbai -400001, INDIA.
T 0091 22 22048272
Email: alka@somaiya.com
www.somaiya.com

1.4 Emergency telephone Number

Emergency number	:	0091 2423 279308 0091 22 61702100/22048272 (Monday – Friday - 09.30 hrs to 18.00)
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SECTION 2: Hazard(s) identification

GHS classification

2.1 Classification of the substance or mixture

Flammable Liquid, Category 3	:	H226 Flammable liquid and vapour.
Acute Toxicity-Oral Category 4	:	H302 Harmful if swallowed.
Acute Toxicity-Dermal Category 4	:	H312 Harmful in contact with skin

2.2: GHS labeling

Hazard pictograms (GHS)



GHS02



GHS07

Signal word (GHS)	:	Warning
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Hazard statements (GHS)

H226	:	Flammable liquid and vapour.
H302	:	Harmful if swallowed.
H312	:	Harmful in contact with skin

Precautionary statements (GHS)

P210	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources
P233	:	Keep container tightly closed.

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P240	:	Ground/bond container and receiving equipment.
P264	:	wash thoroughly after handling
P241	:	Use explosion-proof electrical/ventilating/lighting/equipment.
P270	:	Do not eat, drink or smoke when using this product
P280	:	Wear eye protection, face protection, protective clothing, protective gloves
P242	:	Use only non-sparking tools.
P243	:	Take precautionary measures against static discharge.
P301+P312	:	If swallowed: Call a poison center/doctor if you feel unwell.
P303+P361+P353	:	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P321	:	Specific treatment (see supplemental first aid instructions on this label)
P330	:	Rinse mouth
P362+P364	:	Take off contaminated clothing and wash it before reuse.
P370+P378	:	In case of fire: Use alcohol resistant foam, dry sand to extinguish
P403+P235	:	Store in a well-ventilated place. Keep cool.
P501	:	Dispose of contents/container to an approved waste disposal plant

2.3 Other hazards

Other hazards not contributing to the classification : No further relevant information.

2.4 Unknown acute toxicity (GHS US)

Not Applicable.

SECTION 3: Composition/Information on ingredients

3.1 Substance

Substance type	Mono-constituent		
Name	Product Identifier CAS No EC No	Concentration %	GHS Classification
2-Ethyl-1-butanol (Main constituent)	97-95-0 202-621-4	Min 99.00 %	Flam. Liq. 3 H226 Acute Tox. 4 H302 Acute Tox. 4 H312
Water [By KF] (%)	7732-18-5 231-791-2	Max 0.50 %	Not classified.

Full text of hazard classes and H-statements: see section 16

3.2 Mixture

Not applicable.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aid measures general	:	Do not leave affected persons unattended. First aid personnel should pay attention to their own safety.
First-aid measures after Inhalation	:	Remove person to fresh air and keep comfortable for breathing.

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- First-aid measures after Skin contact** : Wash affected skin with soap and water. Remove contaminated clothing. If irritation persists get medical advice/attention. Wash contaminated clothing before using it again.
- First-aid measures after Eye contact** : Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully.
- First-aid measures after Ingestion** : Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorized by a doctor.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : None reported
- Symptoms/injuries after skin contact : No further relevant information available.
- Symptoms/injuries after eye contact : No further relevant information available.
- Symptoms/injuries after ingestion : Breathing difficulties, headache, dizziness, tiredness, nausea and vomiting.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Water spray. Carbon dioxide (CO₂). Dry chemical. Alcohol resistant foam. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2 Special hazards arising from the substance or mixture

- Explosion Hazard : Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.
- Reactivity : No further relevant information known.

5.3 Advice for firefighters

- Firefighting instructions : Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
- Protection during firefighting : Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

- Protective equipment : Use explosion-proof equipment.
- Emergency procedures : Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Prevent further leak or spill if safe to do so.

6.1.2 For emergency responders

- Protective equipment : Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.
- Emergency procedures : Send away individuals who are not suitably equipped. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.

6.2 Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

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6.3 Methods and material for containment and cleaning up

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| For containment | : | Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. |
| Methods for cleaning up | : | Absorb the remainder with inert absorbent material. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Make sure the leakage site is well aired. |
| Other information | : | Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. |

6.4 Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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|-------------------------------|---|--|
| Precautions for safe handling | : | Avoid contact with skin, eyes, and personal clothing. Wash hands thoroughly after handling. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. |
| Hygiene measures | : | Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment. |

7.2 Conditions for safe storage, including any incompatibilities

- | | | |
|-------------------------------|---|---|
| Incompatible products | : | Strong oxidizing agents, Strong acids. |
| Heat-ignition | : | Sources of ignition.
Use only non-sparking tools |
| Prohibitions on mixed storage | : | Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. |
| Storage area | : | Keep container tightly closed in a dry and well-ventilated place. Store in the original container. |
| Special rules on packaging | : | Containers which are opened must be carefully resealed and kept upright to prevent leakage. Comply with laws. |
| Packaging materials | : | No data available |

7.3 Specific end uses

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits:

Exposure limits not established in US.

8.2 Exposure controls




- | | | |
|----------------------------------|---|---|
| Appropriate engineering controls | : | As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Provide an emergency shower with face and eye wash station. |
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Personal protective equipment	:			
		Tightly sealed goggles.	Protective Gloves.	Protective clothing.
Materials for protective clothing	:	Material of gloves Nitrile rubber, NBR Glove thickness: 0.4 mm Penetration time of glove material (in minutes): 480		
Material of gloves	:	The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.		
Eye protection	:	Wear airtight protective goggles (see standard EN 166).		
Skin and body protection	:	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.		
Respiratory protection	:	Wear a NIOSH/MSHA or European Standard EN 149 approved full-face piece airline respirator in the positive pressure mode with emergency escape provisions. None		

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid
Colour	:	Colorless to pale yellow
Odour	:	Mild, nonresidual odor
pH	:	Not determined
Melting point	:	-15 °C
Freezing point	:	Not determined
Initial boiling point/boiling range	:	146.27 °C (at 760 mmHg)
Flash Point	:	58 °C (136.4 °F) (Open cup)
Density	:	0.83 g/cm ³ (at 20°C)
Specific gravity/ density	:	Not determined
Molecular mass	:	102.17 g/mol
Flammability	:	Flammable liquid.
Danger of explosion:	:	Not determined.
Explosion limits:	:	Lower: 1.08 Vol % Upper: 7 Vol %
Solubility in water (at 20 °C)	:	10 g/l
Vapor pressure	:	1.7 hPa (1.3 mm Hg)
Relative Vapour density	:	3.52
Evaporation Rate	:	Not determined
Partition coefficient n- octanol/water	:	1.78 log KOW
Auto-ignition temperature	:	580 °F
Decomposition temperature	:	Not determined
Viscosity	:	No data Available

9.2 Other information

No data available.

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SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No data available
- 10.2 Chemical Stability** : Stable under normal conditions.
- 10.3 Possibility of hazardous reactions** : No decomposition if used according to specifications.
- 10.4 Conditions to avoid** : Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.
- 10.5 Incompatible materials** : Strong oxidizing agents, Strong acids, Cellulose based absorbent
- 10.6 Hazardous decomposition products** : Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Likely routes of exposure : Ingestion and skin contact
- Acute toxicity : Acute toxicity –Dermal Category 4
Acute toxicity –Oral Category 4

2-Ethyl-1-butanol (97-95-0)

LD50 oral toxicity (rat)	:	1850 mg/kg (rat) (Acute toxicity oral)
LD50 dermal toxicity (rabbit)	:	1260 uL/kg (rabbit) (Acute toxicity dermal)

- Skin irritation : No irritant effect
- Serious eye damage/irritation : No irritating effect.
- Respiratory or skin sensitization : No sensitizing effects known.
- Germ cell mutagenicity : Not classified
- Carcinogenicity : Not classified
- Reproductive toxicity : Not classified
- Specific target organ toxicity – single exposure : Not classified
- Specific target organ toxicity – repeated exposure : Not classified
- Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1 Toxicity

- Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/22155-60-48.
- Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 12155-60- 45/22155-60-49).
- Ecology – water : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/22155-60-48.

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2-Ethyl-1-butanol (97-95-0)				
	Toxicity to Fish	Toxicity to aquatic invertebrates	Toxicity to aquatic plants	Toxicity to Microorganisms
Species	Fish	daphnia	Green Algae	No data available
Value	140.84 mg/L (estimated data)	78.14 mg/L (estimated data)	52.90 mg/L (estimated data)	-
Exposure time	96 hr	48 hrs	96 hrs	-
Test method: OECD	-	-	-	-

12.2 Persistence and degradability

2-Ethyl-1-butanol (97-95-0)

Persistence and degradability : Readily biodegradable (estimated data)

12.3 Bioaccumulative potential

2-Ethyl-1-butanol (97-95-0)

Log KOW : LOW (Log KOW = 1.7497)

Bio-accumulative potential : BCF = 6.629 L/kg wet-wt (estimated data)

12.4 Mobility in soil

2-Ethyl-1-butanol (97-95-0)

Surface Tension : No data available

Ecology – soil : LOW (KOC = 7.645)

12.5 Results of PBT and vPvB assessment

2-Ethyl-1-butanol (97-95-0)

No further relevant information available.

12.6 Other adverse effects

2-Ethyl-1-butanol (97-95-0)

No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste disposal recommendations : Remove and dispose waste in accordance with local and/or national regulations. Recommended practice of distillation, physico-chemical/biological treatment and authorized waste incinerator for solvents with energy recovery. Do not discharge into drains or the environment.

SECTION 14 : TRANSPORT INFORMATION

Marine transport (IMDG)

UN/ID Number : UN2275

Proper shipping name : 2-Ethylbutanol
2275 2-ETHYLBUTANOL
2-ETHYLBUTANOL

Hazard Class : 3 Flammable liquids

Packing group : III

Hazard Identification Number : 30

Marine pollutant : No

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Hazard Labels : 3
EMS Code : F-E,S-D

Air transport ICAO/IATA

UN number : UN2275
Proper shipping name :
2-Ethylbutanol
2275 2-ETHYLBUTANOL
2-ETHYLBUTANOL
Hazard Class : 3
Packing group : III
Hazard Labels : 3
Labels Environmentally : Flammable liquid

Department of Transportation (DOT)

UN number : UN2275
Proper shipping name and description : 2-Ethylbutanol
2275 2-ETHYLBUTANOL
2-ETHYLBUTANOL
Class : 3 Flammable liquids
Packaging group : III
Quantity limitations : On passenger aircraft/rail: 60 L
On cargo aircraft only: 220 L
Poison Inhalation Hazard : No
Hazard labels :



3 - Flammable liquid

SECTION 15: Regulatory information

15.1 National regulations

2-Ethyl-1-butanol (97-95-0)

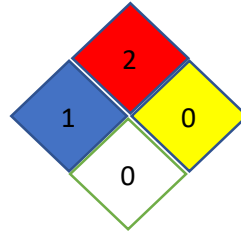
Country	National Inventories	Listing
AUSTRALIA	AiIC	Listed
NEW ZEALAND	NZIoC	Listed
PHILIPPINES	PICCS	Listed
TAIWAN	TCSI	Listed

SECTION 16: Other information

16.1 Hazard Statement

H226 : Flammable liquid and vapour
H302 : Harmful if swallowed
H312 : Harmful in contact with skin

16.2 NFPA Rating



16.3 Abbreviations and acronyms

PBT =Persistent Bioaccumulative and Toxic
 vPvB= Very Persistent and Very Bioaccumulative
 SCBA= Self Contained Breathing Apparatus
 NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit
 OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit
 OELTWA= Occupational Exposure Limit Time Weighted Averages
 IDLH= Immediately Dangerous to Life or Health
 UEL= Upper Explosive Limit
 LEL= Lower Explosive Limit
 RTECS= Registry of Toxic Effects of Chemical Substances
 NTP=National Toxicology Programm
 IARC= International Agency for Research on Cancer
 EPA=Environmental Protection Agency
 TSCA= Toxic Substances Control Act
 NFPA= National Fire Protection Association
 CSR=Chemical Safety Report
 BCF = Bio Concentration Factor
 DNEL = Derived No Effect Level
 PNEC = Predicted No Effect Concentration
 TLV = Threshold Limit Value
 ACGIH = American Conference of Governmental Industrial Hygienist
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
 CLP = Classification, Labelling and Packaging
 LD / LC = Lethal Doses / Lethal Concentration
 GHS = Globally Harmonised System
 ADR = Accord europeen relative au transport international de marchandises
 IMDG-Code = International Maritime Code for Dangerous Goods
 EmS = Emergency measures on Sea
 ICAO = International Civil Aviation Organization
 IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

16.4 Further information:

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