

## 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 <sub>6</sub> H <sub>14</sub> O
Molecular weight	:	102.17 g/mol
Synonyms	:	sec-Hexyl alcohol

### 1.2 Recommended use and restrictions on use

Use of the substance/mixture	:	Chemical Intermediate
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### 1.3 Supplier

Godavari Biorefineries Ltd.  
45/47, Somaiya bhavan,  
Mahatma Gandhi Road,  
Fort, Mumbai -400001, INDIA.  
T 0091 22 61702100/22048272  
Email: [mokashi@somaiya.com](mailto:mokashi@somaiya.com),  
[www.somaiya.com](http://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-US)



GHS 02      GHS 07

##### Signal word (GHS-US)

: Warning

##### Hazard statements (GHS-US)

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

**Precautionary statements (GHS-US)**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources  
 P233 - Keep container tightly closed.  
 P264 - wash thoroughly after handling  
 P240 - Ground/bond container and receiving equipment.  
 P270 - Do not eat, drink or smoke when using this product  
 P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
 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		GHS classification
	Name	Product Identifier CAS No EC No	
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 . Mixtures**

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.

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First-aid measures after inhalation	:	Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	:	Wash affected skin with soap and water. Remove contaminated clothing. If irritation persist 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 atleast 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 authorised by a doctor.

#### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	:	None reported
Symptoms/effects after skin contact	:	No further relevant information available.
Symptoms/effects after eye contact	:	No further relevant information available.
Symptoms/effects 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 (CO <sub>2</sub> ). 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 fire fighting 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
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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. .

### 6.3 Methods and material for containment and cleaning up

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

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.

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### 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.
Personal protective equipment	:	   Protective Gloves. Protective clothing Tightly sealed goggles
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 air line 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 <sup>3</sup> (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

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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.

## 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.

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

	Toxicity to Fish	Toxicity to aquatic invertebrates	Toxicity to aquatic plants	Toxicity to Microorganisms
<b>Species</b>	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)
Bioaccumulative 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

No data available

### SECTION 13 : Disposal considerations

#### 13.1 Waste treatment methods

Waste disposal recommendations : Do not let product enter drains  
Dispose of as unused product. Do not re-use empty containers.  
Disposal must be made according to official regulations.

### SECTION 14 : TRANSPORT INFORMATION

#### Marine transport (IMDG)

UN/ID No. : 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

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 liquids

### SECTION 15: Regulatory information

#### 15.1 National regulations

##### Sorbaldehyde (142-83-6)

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

### SECTION 16: Other information

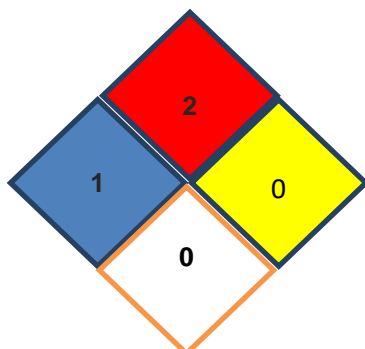
#### 16.1 Hazard Statement

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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