

# Safety Data Sheet

According to US GHS Standards, 29 CFR 1910.1200

Product name: Biobased Butanol



Version: 3.3 / EN

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Revision date: 10.01.2020

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier:

Product Name: Biobased Butanol  
CAS No.: 71-36-3  
EC No: 200-751-6

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

Relevant identified uses: Industrial uses  
Uses advised against: Not known

### 1.3 Details of the supplier of the safety data sheet:

Registered Office:  
Godavari Biorefineries Ltd  
45/47 Somaiya bhavan  
Mahatma Gandhi Road  
Fort Mumbai -400001, India  
Email: mokashi@somaiya.com  
Tel: 0091 22 22048272

### 1.4 EMERGENCY TELEPHONE NUMBERS:

Tel: 0091 2423 279308  
Tel: 0091 22 22048272 (Monday – Friday - 09.30 hrs to 18.00 hrs)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture:

#### GHS Classification in accordance with 29 CFR 1910.1200

Flammable liquids (Category 3), H226  
Acute toxicity, Oral (Category 4), H302  
Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, Central nervous system, H335, H336  
For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

Hazard pictograms



Signal word: Danger

#### Hazard statements:

H226 Flammable liquid and vapor.  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H318 Causes serious eye damage

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H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness

### Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment  
P242 Use only non-sparking tools  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.  
P305 + P351 + P338 + P310 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/doctor  
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**  
Not available

## SECTION 3. Composition/information on ingredients

### 3.1 Substances

**IUPAC Name:** Butan-1-ol  
**Synonym:** Butyl Alcohol

Chemical name	CAS No. INDEX No. EC No.	Classification	Concentration (V/V %)
Biobased Butanol	71-36-3 603-004-00-6 200-751-6	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3, H335 STOT SE 3, H336	≥99

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information:

Consult a physician. Show this safety data sheet to the doctor in attendance.  
Take copy of label and MSDS to health professional with contaminated individual.

#### Inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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## **Skin contact:**

Wash skin with soap & water. Consult a physician.

## **Eye contact:**

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Remove contact lenses if possible. Obtain medical attention.

## **Ingestion:**

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye damage.  
May cause respiratory irritation.  
May cause drowsiness or dizziness

## **4.3 Indication of any immediate medical attention and special treatment needed**

No data available

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

## **SECTION 5: Firefighting measures**

### **5.1 Extinguishing media:**

Suitable extinguishing media:

Dry chemical, alcohol resistant foam or carbon dioxide, water spray

### **5.2 Special hazards arising from the substance or mixture**

Flammable liquid and vapour.

Hazardous combustion products:

Carbon oxides

### **5.3 Advice for fire-fighters**

Self-contained breathing apparatus with full-face mask and full protective clothing (standard wear)

## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

### **6.2 Environmental precautions:**

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Try to prevent the material from entering drains or water courses. Do not let product enter drains.

## 6.3 Methods and material for containment and cleaning up

Small spills: Allow to evaporate if it is safe to do so or contain and absorb using earth, sand or other inert material then transfer into suitable containers for recovery or disposal. Ventilate contaminated area thoroughly. Large spills: Dike or dam to contain for later disposal. Contact emergency authorities.

## 6.4 Reference to other sections

For personal protection see section 8

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 7.3 Specific end uses:

No data available

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### 8.1.1 Occupational exposure limits:

INGREDIENTS	ACGIH	NIOSH REL	OSHA Z1	OSHA P0
Butan-1-ol	20 ppm TWA	50 ppm C	100 ppm TWA	50 ppm C

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### 8.2.2 Personal protective equipment:

##### Eye / Face protection:

Tightly fitting safety goggles tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection:

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## Hand protection:

Wear gloves complying to NIOSH (US)

## Body protection:

Standard work wear and safety boots for normal handling and use

## **Respiratory protection:**

Use with adequate ventilation. In case of insufficient local exhaust ventilation and/or handling with open equipment: Respiratory air fed breathing apparatus if there is a risk of exposure to high vapour concentrations. If using a half mask: organic vapour cartridgeAx type. Use respirators and Components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### **8.2.3 Environmental exposure controls:**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## **SECTION 9. Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |   |
|---|---|
| a) Physical State:                                      | Liquid  |
| b) Colour:  | Colourless  |
| c) Melting Point/freezing point:                        | -90 °C  |
| d) Initial boiling point/boiling range:                 | 118 °C  |
| e) Flash Point:   | 35°C (Closed cup)   |
| f) Upper/lower flammability or explosive limits:        | Upper explosion limit: 11.2 %(V)<br>Lower explosion limit: 1.4 %(V) |
| g) Vapour Pressure:                                     | 6.7 hPa @ 20°C  |
| h) Relative vapour density:                             | 2.6 @ 20°C  |
| i) Relative density:                                    | 0.81 g/mL at 25 °C  |
| j) Partition Coefficient : (Log Pow)<br>n-octanol/water | 0.88 at 25°C  |
| k) Auto-ignition temperature:                           | 340°C   |

### **9.2 Other information:**

No additional data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

None known

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid:

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

### 10.5 Incompatible materials:

Strong oxidising agents

### 10.6 Hazardous decomposition products:

Oxides of carbon on combustion

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute oral toxicity:

LD50

Species: Rat

Value: 790 mg/kg bw

#### Acute dermal toxicity:

LD50

Species: Rabbit

Value: 3430 mg/kg bw

#### Acute inhalation toxicity:

LC50

Species: Rat

Value: >8000 ppm

Exposure time: 4 h

#### Skin irritation:

Species: Rabbit

Classification: irritant

#### Eye irritation:

Species: Rabbit

Classification: irritating to eyes (Irreversible effects on the eye)

Method: OECD Test Guideline 405

#### Germ cell mutagenicity

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No data available

## **Carcinogenicity**

Not listed by ACGIH, IARC, NTP

## **Reproductive toxicity**

No data available

## **Teratogenicity**

No data available

## **Specific target organ toxicity - single exposure (Globally Harmonized System)**

May cause respiratory irritation. May cause drowsiness or dizziness.

## **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

## **Aspiration hazard**

No data available

## **Synergistic effects**

No data available

## **SECTION 12: Ecological information**

### **12.1 Toxicity:**

#### **Toxicity to fish: LC50**

Species: Pimephales promelas

Value: 1376 mg/l

Exposure time: 96 h

#### **Toxicity to aquatic plants:**

EC50

Species: Chlorella vulgaris

Value: 275 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

#### **Toxicity to aquatic invertebrates:**

EC50

Species: Daphnia magna (Water flea)

Value: 1328 mg/l

Exposure time: 48 h

### **12.2 Persistence and degradability**

No data available

### **12.3 Bioaccumulative potential**

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No data available

## 12.4 Mobility in soil

No data available

## 12.5 Results of PBT and vPvB assessment

No data available

## 12.6 Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product disposal:

Dispose of in accordance with all applicable local and national regulations.

#### Packaging:

Dispose of as unused product.

## SECTION 14: Transport information

### DOT (US)

UN number:1120

Proper shipping name and description: Butanols

Class:3

Packaging group:III

Poison Inhalation Hazard: No

### Marine transport (IMDG)

UN number:1120

Proper shipping name and description: Butanols

Class:3.

Packaging group:III

EmS code:Fire schedule: Echo (F-E)Spillage schedule: Delta (S-D)

Labels:Risk label: 3

Marine pollutant: no

### Air transport ICAO/IATA

UN number:1120

Proper shipping name and description: Butanols

Class:3

Packaging group:III

## SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture  
European/International Regulations



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## SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

## SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

CAS-No.	CAS No
Butanol	71-36-3

## SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

## Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

## California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

National inventories Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	listed
CA	DSL	listed
CN	IECSC	listed
EU	ECSI	listed
JP	ENCS	listed
KR	KECI	listed
PH	PICCS	listed
US	TSCA	listed

## Legend

AICS Australian Inventory of Chemical Substances

CSCL-ENCS List of Existing and New Chemical Substances (CSCL-ENCS)

DSL Domestic Substances List (DSL)

ECSI EC Substance Inventory (EINECS, ELINCS, NLP)

IECSC Inventory of Existing Chemical Substances Produced or Imported in China

KECI Korea Existing Chemicals Inventory

PICCS Philippine Inventory of Chemicals and Chemical Substances

TSCA Toxic Substance Control Act

## SECTION 16: Other information

Revision Date: 10-January-2020

Issuing Date: 11-January-2020

### 16.1 Abbreviations and acronyms:

PBT =Persistent Bioaccumulative and Toxic

vPvB= Very Persistent and Very Bioaccumulative

SCBA= Self Contained Breathing Apparatus

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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

## 16.2 Key literature references and sources for data

European Chemical Agency  
RTECS

## 16.3 Relevant R-, H- and EUH-phrases (number and full text):

Eye Irrit.	Eye irritation
Acute Tox	Acute toxicity
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness

## 16.5 Further information:

The safety data sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to

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