

# Safety Data Sheet (SDS)

OSHA Hazard Communication Standard 29 CFR 1910.1200. Prepared to GHS  
Rev03.

Printing date 04/21/2013

Reviewed on 04/21/2013

## 1 Product and Company Identification

- **Product identifier**

- **Trade name:** *N*-Butanol (*N*-Butyl Alcohol)

- **Article number:** GrnChm NButylA

- **CAS Number:**

71-36-3

- **EC number:**

200-751-6

- **Index number:**

603-004-00-6

- **Relevant identified uses of the substance or mixture and uses advised against**

- **Product description** Synonyms: n-butyl alcohol, butyl alcohol, propyl carbinol

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

GreenChem

[www.greenchemindustries.com](http://www.greenchemindustries.com)

222 Clematis St, Suite 207

West Palm Beach, FL 33401

Office: (561) 659-2236

Fax: (561) 659-2237

- **Emergency telephone number:** Chemtrec 800-424-9300

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

H226

Flammable liquid and vapour.



GHS05 Corrosion

H318

Causes serious eye damage.



GHS07

H302

Harmful if swallowed.

H315

Causes skin irritation.

H335-H336

May cause respiratory irritation. May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS05



GHS07

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• **Signal word** Danger

• **Hazard-determining components of labeling:**

butanol

• **Hazard statements**

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

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

• **Precautionary statements**

Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **Classification system:** NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

• **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 3

Reactivity = 0

• **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

• **Other hazards**

• **Results of PBT and vPvB assessment**

• **PBT:** Not applicable.

• **vPvB:** Not applicable.

## 3 Composition/information on ingredients

• **Chemical characterization: Substances**

• **CAS No. Description**

71-36-3 butanol

• **Identification number(s)**

• **EC number:** 200-751-6

• **Index number:** 603-004-00-6

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### 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.  
Protect against electrostatic charges.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

• <b>Components with limit values that require monitoring at the workplace:</b>	
<b>71-36-3 butanol</b>	
PEL	300 mg/m <sup>3</sup> , 100 ppm
REL	Short-term value: C 150 mg/m <sup>3</sup> , C 50 ppm Skin
TLV	61 mg/m <sup>3</sup> , 20 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the skin.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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• **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

• **Information on basic physical and chemical properties**

• **General Information**

• **Appearance:**

**Form:**

Fluid

**Color:**

Colorless

• **Odor:**

Alcohol-like

• **Odour threshold:**

Not determined.

• **pH-value at 20 °C (68 °F):**

7

• **Change in condition**

**Melting point/Melting range:**

-89 °C (-128 °F)

**Boiling point/Boiling range:**

116 °C (241 °F)

• **Flash point:**

33 °C (91 °F)

• **Flammability (solid, gaseous):**

Not applicable.

• **Ignition temperature:**

340 °C (644 °F)

• **Decomposition temperature:**

Not determined.

• **Auto igniting:**

Not determined.

• **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

• **Explosion limits:**

**Lower:**

1.5 Vol %

**Upper:**

9.4 Vol %

• **Vapor pressure at 20 °C (68 °F):**

6.7 hPa (5 mm Hg)

• **Density at 20 °C (68 °F):**

0.81 g/cm<sup>3</sup> (6.759 lbs/gal)

• **Relative density**

Not determined.

• **Vapour density**

Not determined.

• **Evaporation rate**

Not determined.

• **Solubility in / Miscibility with**

**Water at 20 °C (68 °F):**

77 g/l

• **Partition coefficient (n-octanol/water):**

Not determined.

• **Viscosity:**

**Dynamic:**

Not determined.

**Kinematic:**

Not determined.

**Organic solvents:**

100.0 %

**VOC content:**

100.0 %

• **Other information**

No further relevant information available.

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### 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

#### 71-36-3 butanol

Oral	LD50	790 mg/kg (rat)
Dermal	LD50	3400 mg/kg (rabbit)
Inhalative	LC50/4 h	8000 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

#### • **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN1120
- **UN proper shipping name** None
- **DOT, IMDG, IATA** BUTANOLS
- **ADR** 1120 BUTANOLS
- **Transport hazard class(es)**
- **DOT**



- **Class** 3 Flammable liquids.
- **Label** 3

- **ADR, IMDG, IATA**



- **Class** 3 Flammable liquids
- **Label** 3
- **Packing group**
- **DOT, ADR, IMDG, IATA** III
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Warning: Flammable liquids
- **Danger code (Kemler):** 30
- **EMS Number:** F-E,S-D
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** UN1120, BUTANOLS, 3, III

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

- **Section 355 (extremely hazardous substances):**

Substance is not listed.

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• <b>Section 313 (Specific toxic chemical listings):</b>	
Substance is listed.	
• <b>TSCA (Toxic Substances Control Act):</b>	
Substance is listed.	
• <b>Proposition 65</b>	
• <b>Chemicals known to cause cancer:</b>	
Substance is not listed.	
• <b>Chemicals known to cause reproductive toxicity for females:</b>	
Substance is not listed.	
• <b>Chemicals known to cause reproductive toxicity for males:</b>	
Substance is not listed.	
• <b>Chemicals known to cause developmental toxicity:</b>	
Substance is not listed.	
• <b>Carcinogenic categories</b>	
• <b>EPA (Environmental Protection Agency)</b>	
71-36-3 butanol	D
• <b>TLV (Threshold Limit Value established by ACGIH)</b>	
Substance is not listed.	
• <b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	
Substance is not listed.	
• <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>	
Substance is not listed.	

• **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

• **Hazard pictograms**



GHS02 GHS05 GHS07

• **Signal word** Danger

• **Hazard-determining components of labeling:**

butanol

• **Hazard statements**

H226 Flammable liquid and vapour.  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

• **Precautionary statements**

P101 If medical advice is needed, have product container or label at hand.  
P102 Keep out of reach of children.  
P103 Read label before use.

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- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent