

Safety Data Sheet

Butanol Normal

Version 1.6

Revision Date: 09/01/2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Butanol Normal

Recommended use of the chemical and restrictions on use

Recommended use : Solvent.

Manufacturer or supplier's details

Company : Univar Solutions USA, Inc.
Address : 3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)
CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Skin irritation : Category 2
Serious eye damage : Category 1
Specific target organ toxicity - single exposure : Category 3 (Respiratory system, Central nervous system)

GHS label elements

Hazard pictograms :



Signal word : Danger

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

Precautionary statements : **Prevention:**

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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.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ eye protection/ face protection.

Response:

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.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

| CAS-No. | Chemical name | Weight percent |
|---------|---------------|----------------|
| 71-36-3 | 1-Butanol | 90 - 100 |

Any Concentration shown as a range is due to batch variation.

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SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Take victim immediately to hospital.
- If swallowed : Keep respiratory tract clear.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored sepa-

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- rately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : No smoking.
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.
Observe label precautions.

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Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| CAS-No. | Components | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---------|------------|----------------------------------|--|-----------|
| 71-36-3 | 1-Butanol | TWA | 20 ppm | ACGIH |
| | | C | 50 ppm 150 mg/m ³ | NIOSH REL |
| | | TWA | 100 ppm 300 mg/m ³ | OSHA Z-1 |
| | | C | 50 ppm 150 mg/m ³ | OSHA P0 |

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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| | |
|---|--|
| Appearance | : liquid |
| Colour | : Clear, Colorless |
| Odour | : alcohol-like, pungent, sweet |
| Odour Threshold | : 0.83 ppm |
| pH | : No data available |
| Freezing Point (Melting point/freezing point) | : -90 - 89 °C (-130 - 192 °F) |
| Boiling Point (Boiling point/boiling range) | : 117 - 119 °C (243 - 246 °F) |
| Flash point | : 35 °C (95 °F) |
| Evaporation rate | : 0.4 - 0.5 (Butyl Acetate = 1) |
| Flammability (solid, gas) | : No data available |
| Upper explosion limit | : 12 %(V) |
| Lower explosion limit | : 1.4 %(V) |
| Vapour pressure | : 4.5 - 7.50 mmHg @ 20 °C (68 °F) |
| Relative vapour density | : > 2 @ 20 °C (68 °F) (Air = 1.0) |
| Relative density | : 0.81 @ 20 °C (68 °F) Reference substance: (water = 1) |
| Density | : 0.80 - 0.81 g/cm ³ @ 20 °C (68 °F) |
| Solubility(ies) | |
| Water solubility | : slightly soluble |
| Solubility in other solvents | : No data available |
| Partition coefficient: n-octanol/water | : Pow: 7.6 log Pow: 0.88 - 1 |
| Auto-ignition temperature | : 343 - 355 °C |
| Thermal decomposition | : No data available |
| Viscosity | |
| Viscosity, dynamic | : 2.947 - 3 mPa.s @ 20 °C (68 °F) |
| Viscosity, kinematic | : 3.6 - 4 mm ² /s @ 20 °C (68 °F) |
| Surface tension | : 69.9 mN/m, 20 °C |

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SECTION 10. STABILITY AND REACTIVITY

| | |
|------------------------------------|--|
| Reactivity | : No dangerous reaction known under conditions of normal use. |
| Chemical stability | : Stable under normal conditions. |
| Possibility of hazardous reactions | : Vapours may form explosive mixture with air. |
| Conditions to avoid | : Keep away from heat, flame, sparks and other ignition sources. |
| Incompatible materials | : Acids halogens Oxidizing agents Reducing agents |
| Hazardous decomposition products | : Carbon oxides |

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Components:****71-36-3:**

Acute oral toxicity : LD50 (Rat): 790 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Skin corrosion/irritation**Components:****71-36-3:**

Species: Rabbit
Result: Irritating to skin.

Serious eye damage/eye irritation**Components:****71-36-3:**

Species: Rabbit
Result: Risk of serious damage to eyes.

Carcinogenicity

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| | |
|--------------|---|
| IARC | No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| OSHA | No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. |
| NTP | No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. |
| ACGIH | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. |

STOT - single exposure

Components:

71-36-3:

Target Organs: Respiratory system

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Target Organs: Central nervous system

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Further information

Product:

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Concentrations substantially above the TLV value may cause narcotic effects.

Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

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Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
 Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Contaminated packaging : Empty remaining contents.
 Dispose of as unused product.
 Do not re-use empty containers.
 Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):

UN1120, Butanols, 3, III

IATA (International Air Transport Association):

UN1120, Butanols, 3, III

IMDG (International Maritime Dangerous Goods):

UN1120, BUTANOLS, 3, III, Flash Point:35 °C(95 °F)

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : B2: Flammable liquid
 D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|------------|---------|--------------------|-----------------------------|
| 1-Butanol | 71-36-3 | 5000 | 5051 |

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
 Acute Health Hazard

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

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

| | |
|---------|-----------|
| 71-36-3 | 1-Butanol |
|---------|-----------|

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

| | |
|---------|-----------|
| 71-36-3 | 1-Butanol |
|---------|-----------|

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

| | | |
|---------|-----------|------------|
| 71-36-3 | 1-Butanol | 90 - 100 % |
|---------|-----------|------------|

Pennsylvania Right To Know

| | | |
|---------|-----------|------------|
| 71-36-3 | 1-Butanol | 90 - 100 % |
|---------|-----------|------------|

New Jersey Right To Know

| | | |
|---------|-----------|------------|
| 71-36-3 | 1-Butanol | 90 - 100 % |
|---------|-----------|------------|

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

- TSCA : On TSCA Inventory
- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- NZIoC : On the inventory, or in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PHIL : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory

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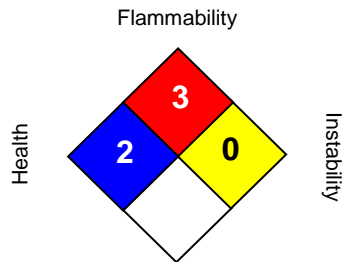
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SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

| | |
|------------------------|-----------|
| HEALTH | 2* |
| FLAMMABILITY | 3 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 09/01/2019

Legacy SDS: : R0004296

Material number:

16153160, 16143338, 16127341, 16121166, 16118575, 16117201, 16115158, 16112353, 16056515, 16086704, 16056516, 16056514, 16049716, 16033088, 720931, 699235, 685939, 625285, 596629, 554346, 554073, 546850, 546867, 546088, 105842, 89389, 72054, 74155, 105843, 56628, 88435, 72345, 87786, 88710, 506617, 32583, 20473, 20472, 20471, 163299

| Key or legend to abbreviations and acronyms used in the safety data sheet | | | |
|---|---|-------|---|
| ACGIH | American Conference of Government Industrial Hygienists | LD50 | Lethal Dose 50% |
| AICS | Australia, Inventory of Chemical Substances | LOAEL | Lowest Observed Adverse Effect Level |
| DSL | Canada, Domestic Substances List | NFPA | National Fire Protection Agency |
| NDSL | Canada, Non-Domestic Substances List | NIOSH | National Institute for Occupational Safety & Health |
| CNS | Central Nervous System | NTP | National Toxicology Program |
| CAS | Chemical Abstract Service | NZIoC | New Zealand Inventory of Chemicals |

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| | | | |
|--------|--|-------|--|
| EC50 | Effective Concentration | NOAEL | No Observable Adverse Effect Level |
| EC50 | Effective Concentration 50% | NOEC | No Observed Effect Concentration |
| EGEST | EOSCA Generic Exposure Scenario Tool | OSHA | Occupational Safety & Health Administration |
| EOSCA | European Oilfield Specialty Chemicals Association | PEL | Permissible Exposure Limit |
| EINECS | European Inventory of Existing Chemical Substances | PICCS | Philippines Inventory of Commercial Chemical Substances |
| MAK | Germany Maximum Concentration Values | PRNT | Presumed Not Toxic |
| GHS | Globally Harmonized System | RCRA | Resource Conservation Recovery Act |
| >= | Greater Than or Equal To | STEL | Short-term Exposure Limit |
| IC50 | Inhibition Concentration 50% | SARA | Superfund Amendments and Reauthorization Act. |
| IARC | International Agency for Research on Cancer | TLV | Threshold Limit Value |
| IECSC | Inventory of Existing Chemical Substances in China | TWA | Time Weighted Average |
| ENCS | Japan, Inventory of Existing and New Chemical Substances | TSCA | Toxic Substance Control Act |
| KECI | Korea, Existing Chemical Inventory | UVCB | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <= | Less Than or Equal To | WHMIS | Workplace Hazardous Materials Information System |
| LC50 | Lethal Concentration 50% | | |