

MATERIAL SAFETY DATA SHEET

NFPA	HMIS	Personal Protective Equipment
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Health Hazard	2
Fire Hazard	3
Reactivity	0



See Section 8.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
Product code:	B1185
Product Name:	BUTYL ALCOHOL, REAGENT, ACS
Chemical Name:	Butyl alcohol
Synonyms:	1-Butanol 1-Butyl alcohol 1-Hydroxybutane Alcool butylique (French) Butan-1-ol Butanol Butyl hydroxide Butyric or normal primary butyl alcohol Hemostyp Methylolpropane n-Butan-1-ol n-Butanol n-Butyl alcohol Propylcarbinol Propylmethanol
Recommended use:	Solvent. Chemical intermediate. Stabilizer.
CAS #:	71-36-3
Formula:	CH ₃ (CH ₂) ₃ OH
RTECS #	EO1400000
CI#:	Not available
Supplier:	Spectrum Chemicals and Laboratory Products, Inc. 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000
Order Online At:	https://www.spectrumchemical.com
Emergency Telephone Number:	CHEMTREC: 1-800-424-9300
Contact Person:	Regina Wachenheim (East Coast)
Contact Person:	Martin LaBenz (West Coast)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! FLAMMABLE LIQUID AND VAPOR

Can burn with an invisible flame

WARNING! IRRITANT

Irritating to eyes

Irritating to skin

Irritating to respiratory system

May be harmful if swallowed

Odor:

Rancid. Sweet. Strong.
Characteristic. Mildly alcoholic.
Similar to Amyl alcohol.

Physical state:

Liquid.

Appearance:

No information available

Color:

Clear. Colorless.

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:

Ingestion. Skin. Eyes. Inhalation.

Acute Potential Health Effects:

Skin Contact:

Contact causes skin irritation. Moderately irritating to the skin. It may be absorbed through the skin. If absorbed through skin it may cause systemic effects with symptoms similar to those of ingestion.

Eye Contact:

Causes eye irritation. Severe eye irritation. Possible eye damage.

Inhalation:

Irritating to respiratory system. Causes conjunctival irritation. May cause nausea and vomiting. Inhalation of vapors may cause dizziness or suffocation. May cause central nervous system effects. May affect respiration. May affect the liver. It may affect the blood.

Ingestion:

May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhoea. May cause gastritis. It may affect the kidneys. May affect the liver. May affect the blood. May affect respiration. May affect the cardiovascular system.

Chronic Potential Health Effects:

Component

Butyl Alcohol
71-36-3 (100)

Carcinogen Status:

No information available

Target Organs:

Skin. Eyes. Central nervous system. Kidneys. Liver. Hearing. Auditory nerve.
Respiratory system.

Mutagenic Effects:

No information available

Teratogenic Effects:

There is limited and equivocal evidence that Butyl alcohol is a teratogen in animals
It has not been shown to cause teratogenic effects in humans

Aggravated Medical Conditions: No information available

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Butyl Alcohol	71-36-3	100

4. FIRST AID MEASURES

General Advice:	Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.
Eye Contact:	Flush eye with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
Notes to Physician:	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F):	37 °C/98 °F
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Flash Point Tested according to: Closed cup

Lower Explosion Limit (%):	1.4%
Upper Explosion Limit (%):	11.2%

Autoignition Temperature (°C/°F):	343 °C/650 °F
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Suitable Extinguishing Media:	Carbon dioxide (CO ₂). Dry chemical. Alcohol-resistant foam. Water spray.
Unsuitable Extinguishing Media:	Do not use a solid (straight) water stream as it may scatter and spread fire.
Hazardous Combustion Products:	Carbon monoxide; Carbon dioxide

Specific hazards:

Flammable
May be ignited by heat, sparks or flames
Material can burn with invisible flame
Vapor may travel considerable distance to source of ignition and flash back
Vapors may form explosive mixtures with air
Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks)
Container explosion may occur under fire conditions or when heated
Fire may produce irritating, corrosive and/or toxic gases

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Specific Methods:

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for Cleaning Up:

Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Storage

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Alkali Metals. Halogens. Aluminum. caustics. isocyanates.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Personal Protective Equipment

- Eye protection:** Goggles. Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

National occupational exposure limits**United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Butyl Alcohol - 71-36-3	100 ppm TWA 300 mg/m ³ TWA	50 ppm Ceiling 150 mg/m ³ Ceiling	20 ppm TWA	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Butyl Alcohol 71-36-3	20 ppm TWA 60 mg/m ³ TWA	15 ppm TWA 30 ppm Ceiling	20 ppm TWA	50 ppm Ceiling 152 mg/m ³ Ceiling

Australia and Mexico

Components	Australia	Mexico
Butyl Alcohol 71-36-3	None	50 ppm Peak 150 mg/m ³ Peak

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: No information available	Color: Clear. Colorless.
Odor: Rancid. Sweet. Strong. Characteristic. Mildly alcoholic. Similar to Amyl alcohol.	Molecular/Formula weight: 74.12	Taste: Dry, burning taste.
Flash point (°C): 37	Lower Explosion Limit (%): 1.4%	Upper Explosion Limit (%): 11.2%
Autoignition Temperature (°C/°F): 343 °C/650 °F	Melting point/range(°C/°F): -89.8 °C/-129.64 °F	Boiling point/range(°C/°F): 117 °C/343 °F
pH: No information available	Decomposition temperature(°C/°F): No information available	Specific gravity: 0.8-0.81
Density (g/cm³): No information available	Bulk density: No information available	Vapor pressure @ 20°C (kPa): No information available
Evaporation rate: 0.46 (butyl acetate = 1)	Vapor density: 2.6	VOC content (g/L): 800
Odor threshold (ppm): 0.83	Partition coefficient (n-octanol/water): 0.88	Miscibility: Miscible with Ethanol Miscible with Ether Miscible with many organic solvents

Solubility:
Soluble in Water
Solubility in water: 63.2 g/L @ 25 °C

10. STABILITY AND REACTIVITY

Stability:	Stable at normal conditions
Conditions to avoid:	Heat. Ignition sources. Incompatible materials.
Incompatible Materials:	Oxidizing agents. Acids. Alkali Metals. Halogens. Aluminum. caustics. isocyanates.
Hazardous decomposition products:	Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes.
Possibility of Hazardous Reactions:	It may react with aluminum at temperatures above 49 degrees C (120 degrees F)
Polymerization:	Hazardous polymerisation does not occur
Corrosivity:	No information available
Special Remarks on Corrosivity:	No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Butyl Alcohol - 71-36-3

LD50/oral/rat = 790 mg/kg Oral LD50 Rat (LOLI and RTECS)

4360 mg/kg (RTECS)

LD50/oral/mouse = 100 mg/kg (RTECS)

LD50/dermal/rat =

No information available

LD50/dermal/rabbit = 3400 mg/kg

LC50/inhalation/rat = 8000 ppm Inhalation LC50 Rat 4 h

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information =

3484 mg/kg Oral LD50 Rabbit (RTECS)

1200 mg/kg Oral LD50 Hamster (RTECS)

1782 mg/kg Oral LD50 Dog (RTECS)

Product Information

LC50/inhalation/rat 8000 ppm 4 h

LC50/Inhalation/mouse No information available

LD50/dermal/rabbit 3400mg/kg

LD50/dermal/rat No information available

LD50/oral/mouse = 100mg/kg

LD50/oral/rat = 790mg/kg

Local Effects

Skin irritation: Causes skin irritation. Moderate skin irritation.

Eye irritation: Causes eye irritation. Severe eye irritation. Causes lacrimation. May cause conjunctival irritation. May cause blurred vision. May cause inflammation of the cornea. Possible eye damage.

Inhalation: Irritating to respiratory system. Symptoms may include coughing and shortness of breath. Symptoms may include coughing and wheezing. May affect respiration (respiratory depression). May cause conjunctival irritation. May cause nausea, vomiting. May cause headache. Inhalation of high concentrations of vapors may cause dizziness or suffocation. May affect behavior/central nervous system (dizziness, somnolence, muscle weakness, ataxia). It may affect the liver. It may affect the blood (changes in serum composition). It may affect the blood (changes in white blood cell count, changes in other cell count).

Ingestion: May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause gastritis. May affect the cardiovascular system (change in heart rate). It may affect the liver (fatty liver degeneration). May affect urinary system (kidneys). May affect the blood. May affect respiration (shortness of breath).

Sensitization: No information available

Chronic Toxicity

Chronic Toxicity

Prolonged or repeated skin contact may cause dermatitis, and dryness and cracking of the skin.. Prolonged or repeated inhalation of high concentrations may cause hearing impairment, with auditory nerve damage and vestibular system injury, and severe vertigo (diagnosed as Meniere's disease). Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may affect the liver. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated ingestion may affect behavior/central nervous system (somnolence, ataxia, muscle weakness). Prolonged or repeated ingestion may affect the blood (changes in red blood cell count). Prolonged or repeated inhalation may affect the adrenal gland. Prolonged or repeated ingestion may affect the adrenal gland.

Carcinogenic effects: Not considered carcinogenic

Components	NTP	IARC	OSHA HCS - Carcinogens	ACGIH - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Butyl Alcohol	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects: No information available

Reproductive Effects: May cause adverse developmental effects based on animal data
Possible risk of harm to the unborn child
No information on developmental toxicity effects on humans was found

Teratogenic Effects: There is limited and equivocal evidence that Butyl alcohol is a teratogen in animals. It has not been shown to cause teratogenic effects in humans.

Target Organs: Skin. Eyes. Central nervous system. Kidneys. Liver. Hearing. Auditory nerve. Respiratory system.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals: Information given is based on data on the components and the ecotoxicology of similar products

Ecotoxicity effects: Aquatic environment.

Aquatic toxicity:

Butyl Alcohol - 71-36-3

Freshwater Algae Data: 500 mg/L EC50 *Desmodesmus subspicatus* 72 h
500 mg/L EC50 *Desmodesmus subspicatus* 96 h

Freshwater Fish Species Data: 100000-500000 µg/L LC50 *Lepomis macrochirus* 96 h static 1
1730-1910 mg/L LC50 *Pimephales promelas* 96 h static 1
1740 mg/L LC50 *Pimephales promelas* 96 h flow-through 1
1910000 µg/L LC50 *Pimephales promelas* 96 h static 1

Water Flea Data: 1897 - 2072 mg/L EC50 *Daphnia magna* 48 h
1983 mg/L EC50 *Daphnia magna* 48 h

Mobility: It is expected to have high mobility in soil.

Persistence and degradability: Readily biodegradable

Bioaccumulative potential: Potential for bioconcentration in aquatic organisms is low.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Butyl Alcohol	None	None	None	U031 Ignitable waste

14. TRANSPORT INFORMATION

DOT

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: Not applicable
Marine Pollutant: No data available
ERG No: 129
DOT RQ (lbs): No information available

Symbol(s): R5

TDG (Canada)

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available
Description: No information available

ADR

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-E
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: 3
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available
Description: No information available

IATA

UN-No: UN1120
Proper Shipping Name: Butanols
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available
ERG Code: 3L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	Philippines (PICCS)	KOREA KECL	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Butyl Alcohol</i>	Present	Present	Present KE-03867	2-3049	Present	Present	Present 200-751-6

U.S. Regulations

Butyl Alcohol

- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: Present
- New Jersey (EHS) List: Present
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- Pennsylvania RTK: Present
- Minnesota - Hazardous Substance List: Present
- New York Release Reporting - List of Hazardous Substances:
5000 lb RQ
1 lb RQ
- Louisana Reportable Quantity List for Pollutants: Listed
- California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Butyl Alcohol	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>Butyl Alcohol</i>	5000 lb final RQ 2270 kg final RQ	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>Butyl Alcohol</i>	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

B2 Flammable liquid
D2B Toxic materials

Butyl Alcohol

B2 D2B

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
<i>Butyl Alcohol</i>	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
<i>Butyl Alcohol</i>	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
<i>Butyl Alcohol</i>	Not listed	Not listed

EU Classification

R-phrases

R10 - Flammable.
R22 - Harmful if swallowed.
R41 - Risk of serious damage to eyes.
R67 - Vapors may cause drowsiness and dizziness.
R37/38 - Irritating to respiratory system and skin.

S -phrase(s)

S 7 - Keep container tightly closed.

S 9 - Keep container in a well-ventilated place.

S13 - Keep away from food, drink and animal feedingstuffs.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 - Wear suitable gloves.

S39 - Wear eye/face protection.

S46 - If swallowed, seek medical advice immediately and show this container or label.

Components	Classification	Concentration Limits:	Safety Phrases
Butyl Alcohol	R10 Xn; R22 Xi; R37/38-41 R67	No information	S2 S7/9 S13 S26 S37/39 S46

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Xn - Harmful.

Xi - Irritant.

**16. OTHER INFORMATION**

The MSDS format complies with ANSI Z400.1/Z129.1-2010 standards.

Preparation Date: 08-Nov-2013

Reason for revision: Not applicable

Prepared by: Sonia Owen

Literature reference: No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.