

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

SAFETY DATA SHEET

n-BUTYL ALCOHOL

1. Identification

Product identifier: n-Butyl Alcohol

Product Code Number: 3010

Company Identification: Corco Chemical Corporation
299 Cedar Lane
Fairless Hills, PA 19030
Phone: 215-295-5006
Fax: 215-295-0781

24 Hour Emergency Telephone Number: CHEMTREC (U.S.): 1-800-424-9300
CHEMTREC (Outside U.S. 1-703-527-3887)

Trade Name: n-Butyl Alcohol
Synonyms: 1-Butanol, Propyl Carbinol, Butanol
Chemical Formula: CH₃(CH₂)₂CH₂OH
Product Use: Process chemical, Laboratory and scientific research and development

2. HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture:

Flammable liquids	Category 3
Acute toxicity, Oral	Category 4
Acute toxicity, Inhalation	Category 5
Acute toxicity, Dermal	Category 5
Skin irritation	Category 2
Eye irritation	Category 2A
Specific target organ toxicity Single exposure	Category 3

Risk Phrases: Flammable liquid. Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. Vapors may cause drowsiness and dizziness.

OSHA Hazards: Flammable liquid, Target organ effect, Irritant

Target Organs: Central nervous system, Kidney, Liver, Bladder, Thyroid

Label elements



Singal word: DANGER

Hazard statement: Highly flammable liquid and vapor. May be harmful if swallowed or in contact with skin. Causes mild skin irritation. Causes serious eye irritation. May cause respiratory irritation. Toxic if inhaled.

Precautionary Statements: Keep away from heat / sparks / open flames / Hot surfaces. No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.

3. Composition/information

CAS Number: 71-36-3

EC Number: 200-751-6

Index Number: 603-004-00-6

Molecular Weight: 74.12 g/mol

<u>Ingredient</u>	<u>CAS Number</u>	<u>EC Number</u>	<u>Percent</u>	<u>Hazardous</u>	<u>Chemical Characterization</u>
n-butyl Alcohol	71-36-3	200-751-6	99-100%	Yes	Substance

4. First-aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. Call a physician.

Ingestion: Do not induce vomiting, unless directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire-fighting measures

Fire: Highly flammable. Dangerous fire hazard when exposed to heat or flame.

Explosion: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

Fire Extinguishing Media: Dry chemical, Alcohol foam or Carbon Dioxide. Water spray may be used to keep fire exposed containers cool.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8 of SDS. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental precautions: Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.

Methods and materials for containment and cleaning up: Neutralize spill with sodium bicarbonate or lime. Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

7. Handling and storage

Precautions for safe handling: See section 8 of the SDS for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid breathing vapors. Keep away from sources of ignition – No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for safe storage, including any incompatibilities: Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 of SDS for incompatibilities).

8. Exposure controls/personal protection

Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL): 100 ppm (TWA)

ACGIH Threshold Limit Value (TLV): 20 ppm (TWA)

Ventilation System: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and / or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with organic vapor cartridge may be worn up to 50 times (50X) the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in Oxygen- deficient atmospheres.

9. Physical and chemical properties

Appearance:	Clear, colorless solution
Odor:	Strong characteristic, mildly alcoholic odor
Odor Threshold:	Not determined
pH:	Not available
% Volatiles by volume @ 21C (70F):	100
Melting Point:	-89C (-128F)
Boiling Point / Boiling Range:	118C (244F)
Flash Point:	37C (99F) CC
Evaporation Rate (BuAC=1):	0.46
Flammability:	Flammable
Upper/Lower Flammability or Explosive Limits:	Upper – 11.2 / Lower – 1.4 in air, % by volume
Vapor Pressure (mm Hg):	5 @ 20C (68F)
Vapor Density (Air=1):	2.6
Relative Density:	0.81 g/mL at 25C (77F)
Solubility:	Soluble - 9 mL/100 mL water @ 25C
Partition Coefficient: n-octanol / water:	Not determined
Auto-ignition Temperature:	343C (649F)
Decomposition Temperature:	Not determined
Viscosity:	Not determined

10. Stability and reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, flames, ignition sources and incompatibles.

Incompatible Materials: Strong oxidizers, strong mineral acids, halogens, Aluminum, Chromium Trioxide, Alkali metals.

Hazardous Decomposition Products: Carbon Dioxide and Carbon Monoxide may form when heated to decomposition.

11. Toxicological information

Emergency Overview: WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY AFFECT LIVER AND KIDNEYS.

Potential Health Effects:

Inhalation: Butyl Alcohols have produced few cases of poisoning in industry because of their low volatility. Causes irritation to upper respiratory tract. Difficult breathing, coughing, headache, dizziness, and drowsiness may occur. May be absorbed into the bloodstream with symptoms similar to ingestion.

Ingestion: May have narcotic effect. May cause abdominal pain, nausea, headache, dizziness, and diarrhea. Large doses may affect kidneys and liver. May affect hearing. Estimated mean lethal dose is 3 - 7 ounces.

Eye Contact: Vapors can be irritating, causing tearing and pain. Splashes cause inflammation and blurred vision.

Skin Contact: An irritant to the skin, causing a loss of natural oils. Can be absorbed through skin with symptoms paralleling those from ingestion.

Chronic Exposure: Prolonged skin contact may cause drying and cracking of skin. Hearing loss has been reported in workers chronically exposed to Butyl Alcohol. May affect sense of balance, liver and kidneys.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
n-Butyl Alcohol (71-36-3)	No	No	None

Acute Toxicity:

Oral rat LD50: 790 mg/kg; Inhalation rat LC50: 8000 ppm / 4 h

Skin rabbit LD50: 3400 mg/kg

Irritation, standard Draize, skin, rabbit, 20 mg / 24 h moderate

Irritation, standard Draize, eye, rabbit, 2 mg / 24 h severe

Investigated as a mutagen, reproductive effecter.

12. Ecological information

Ecotoxicity: This material is not expected to be toxic to aquatic life. The LC50 / 96 h values for fish are over 100 mg/l. The EC50 / 48 h values for daphnia are over 100 mg/l.

Persistence and Degradability: When released into the soil, this material is expected to readily biodegrade. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Bioaccumulative Potential: When released into the soil, this material may evaporate to a moderate extent. When released to water, this material is expected to quickly evaporate. This material has a log octanol-water partition coefficient of less than 3.0. This material is not expected to significantly bioaccumulate.

Mobility in Soil: When released into the soil, this material is expected to leach into groundwater.

Other adverse effects: No additional information.

13. Disposal considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transportation Information

UN Number: UN1120

UN Proper Shipping Name: BUTANOLS

Packing Group: III

DOT IMDG IATA



Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 3

Maritime Transport IMDG/GGVSea

Transport Hazard Class(es): 3

EMS-No: F-E, S-D

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR

Transport Hazard Class(es): 3

**Transport in Bulk (according to Annex II of MARPOL 73/78 and the IBC Code):
Not Applicable**

Special Precautions for User: No additional information.

15. Regulatory information

TSCA Inventory Status:	All ingredients are listed on the TSCA inventory.
DSCL (EEC):	All ingredients are listed on the DSCL inventory.
California Proposition 65:	Not Listed
SARA 302:	Not Listed
SARA 304:	Not Listed
SARA 311:	tert-Butyl Alcohol
SARA 312:	tert-Butyl Alcohol
SARA 313:	Listed: tert-Butyl Alcohol
WHMIS:	Canada Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F)

16. Other information

Disclaimer - The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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