PURITAN PRODUCTS

Effective Date: 07/01/13
Replaces Revision: 05/19/08

NON-EMERGENCY TELEPHONE
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE
800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: N-BUTYL ALCOHOL
Synonyms: 1-Butanol, Propyl Carbinol, Butanol, N-Butyl Alcohol
Chemical Formula: CH3(CH2)2CH2OH
Recommended Use of the Chemical and Restrictions On Use: Laboratory Reagent
Manufacturer / Supplier: Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225
Emergency Phone Number: 24-Hour Chemtrec Emergency Telephone 800-424-9300

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

Label Elements:

Trade Name: N-BUTYL ALCOHOL
Signal Word: Warning

Hazard Statements:
H226: Flammable liquid and vapor.
H315: Causes skin irritation.
H302: Harmful if swallowed.
H313 + H333: May be harmful in contact with skin or if inhaled.
H319: Causes serious eye irritation.
H331: Toxic if inhaled.
H335 + H336: May cause respiratory irritation, and drowsiness or dizziness.

Precautionary Statements:
P261: Avoid breathing dust / fume / gas / mist / vapors / spray.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

3. Composition / Information on Ingredients

CAS Number: 71-36-3
EC Number: 200-751-6
Index Number: 603-004-00-6
Molecular Weight: 74.12 g/mol

Ingredient	CAS Number	EC Number	Percent	Hazardous	Chemical Characterization
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: 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. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product.

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.

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.

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.

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.

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

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

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. Transport 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

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
n-Butyl Alcohol (71-36-3)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
n-Butyl Alcohol (71-36-3)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

	SARA 302		SARA 313	
Ingredient	RQ	TPQ	List Chemical	Catg.
n-Butyl Alcohol (71-36-3)	No	No	Yes	No

Federal, State & International Regulations - Part 2

	RCRA		TSCA
Ingredient	CERCLA	261.33	8(d)
n-Butyl Alcohol (71-36-3)	5000	U031	No

Chemical Weapons Convention: No		**TSCA 12(b):** No		**CDTA:** Yes
SARA 311/312:	**Acute:** Yes	**Chronic:** Yes	**Fire:** Yes	**Pressure**: No
Reactivity: No		Pure / Liquid		

16. Other Information

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