Material Safety Data Sheet
n-Butyl ether, 99+%

ACC# 96822

Section 1 - Chemical Product and Company Identification

MSDS Name: n-Butyl ether, 99+%
Catalog Numbers: AC149690010, AC149690025, AC149690200, AC149695000, AC423140010, AC423140020, AC423140200, AC423145000, AC9564450, AC9592617, XXAC14969200, XXAC14969342
Synonyms: Di-n-Butyl ether; 1-Butoxybutane.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
142-96-1	n-Butyl ether	+99	205-575-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 25 deg C.
Warning! Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. May form explosive peroxides.
Target Organs: Respiratory system, eyes, skin, mucous membranes.

Potential Health Effects
Eye: Causes eye irritation. Causes redness and pain.
Skin: Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed.
Inhalation: May be harmful if inhaled. Vapors may cause dizziness or suffocation. Causes irritation of the mucous membrane and upper respiratory tract. Causes narcotic effects including headache, dizziness, weakness, unconsciousness.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid imme diately.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Flammable liquid and vapor. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: Use water fog, dry chemical, carbon dioxide, or regular foam.
Flash Point: 25 deg C (77.00 deg F)
Autoignition Temperature: 175 deg C (347.00 deg F)
Explosion Limits, Lower:1.5
Upper: 7.6
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm

sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Store in a cool, dry place. Store in a tightly closed container. Flammables-area. Storage under a nitrogen blanket has been recommended. Containers should be dated when opened and tested periodically for the presence of peroxides. May form explosive peroxides on prolonged storage.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
n-Butyl ether	none listed	none listed	none listed

OSHA Vacated PELs: n-Butyl ether: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical goggles and a face shield if splashing is possible.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: sweetish odor
pH: Not available.
Vapor Pressure: 6.4 mbar @ 20 C
Vapor Density: 4.48
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 142 deg C
Freezing/Melting Point:-95 deg C
Decomposition Temperature: Not available.
Solubility: Immiscible.
Specific Gravity/Density:.7700g/cm3
Molecular Formula:C8H18O
Molecular Weight:130.23

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Tends to form explosive peroxides; especially when anhydrous. May form explosive peroxides on prolonged storage.
Conditions to Avoid: Ignition sources, excess heat, electrical sparks.
Incompatibilities with Other Materials: Acids (mineral, non-oxidizing, e.g. hydrochloric acid, hydrofluoric acid, muriatic acid, phosphoric acid), acids (mineral, oxidizing, e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), oxidizing agents (strong, e.g. bromine, hydrogen peroxide, nitrogen dioxide, potassium nitrate), water reactive substances (e.g. acetic anyhdride, alkyl aluminum chloride, calcium carbide, ethyl dichlorosilane).
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 142-96-1: EK5425000
LD50/LC50:
CAS# 142-96-1:
Inhalation, mouse: LC50 = 169 gm/m3/15M;
Oral, mouse: LD50 = 567 mg/kg;
Oral, rat: LD50 = 7400 mg/kg;
Skin, rabbit: LD50 = 10 mL/kg;
.

Carcinogenicity:
CAS# 142-96-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 32-32.5 mg/L; 96 Hr.; Flow-throughBacteria: Phytobacterium phosphoreum: EC50 = 62-63 mg/L; 5 minutes; Microtox test No data available.
Environmental: If dibutyl ether is released to soil, it will be subject to volatilization based upon a reported Henry's Law constant of 5.89X10-3 atm-cu m/mole and vapor pressure of 6.01 mm Hg at 25 deg C. It will be expected to exhibit low mobility(4,SRC) in soil and, therefore, leaching to groundwater is unlikely based upon an estimated Koc of 1130(2,3,SRC). It will not be expected to hydrolyze in soil(3). Dibutyl ether may be resistent to biodegradation in environmental media based upon
Physical: If dibutyl ether is released to water, it will not be expected to significantly adsorb to sediment or suspended particulate matter, bioconcentrate in aquatic organisms, hydrolyze, directly photolyze, or photooxidize via reaction with photochemically produced hydroxyl radicals in water, based upon estimated physical-chemical properties or analogies to other structurally related aliphatic ethers. Dibutyl ether in surface water will be subject to rapid volatilization.
Other: No data concerning the biodegradation of dibutyl ether in environmental media were located. The 5-day biological oxygen demand was 16% of theoretical in screening tests which utilized acclimated mixed microbial cultures. These data suggest that dibutyl ether may slowly be biodegraded in environmental media. Many ethers are known to be resistant to biodegradation.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DIBUTYL ETHERS	DIBUTYL ETHERS
Hazard Class:	3	3
UN Number:	UN1149	UN1149
Packing Group:	III	III
Additional Info:		FLASHPOINT 25 C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 142-96-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 142-96-1: immediate, fire, reactive.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 142-96-1 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XI

Risk Phrases:

R 10 Flammable.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 142-96-1: 2

Canada - DSL/NDSL

CAS# 142-96-1 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 6/24/1999
Revision #4 Date: 10/20/2005