



MATERIAL SAFETY DATA SHEET

n-Butanol, P.A.
95676

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: n-Butanol, P.A.

n-Butyl Alcohol
Company Identification: Acros Organics N.V.
One Reagent Lane
Fairlawn, NJ 07410
For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
71-36-3	n-Butyl alcohol	>99%	200-751-6

Hazard Symbols: XN
Risk Phrases: 10 20

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear, colorless. Flash Point: 35 deg C.
Warning! Flammable liquid. May be harmful if swallowed. May cause central nervous system depression. May cause liver and kidney damage. May cause eye and skin irritation. May cause respiratory and digestive tract irritation.
Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye:

May cause moderate eye irritation. May result in corneal injury.

Skin:

Causes skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.

Ingestion:

May cause irritation of the digestive tract. May cause liver and kidney damage. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May be harmful if swallowed.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause lung damage. May cause drowsiness, unconsciousness, and central nervous system depression.

Chronic:

Chronic exposure to concentrations above 50 to 200 ppm causes irritation of the eyes with tearing, blurring of the vision, and photophobia. Repeated eye exposure may cause visual abnormalities including blurred vision and photosensitivity.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid. Do NOT allow victim to rub or keep eyes closed.

Skin:

Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. 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:

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

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 can travel to a source of ignition and flash back. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Autoignition Temperature: 340 deg C (644.00 deg F)

Flash Point: 35 deg C (95.00 deg F)

NFPA Rating: health-1; flammability-3; reactivity-0

Explosion Limits, Lower: 1.4 vol%

Upper: 11.2 vol%

**** 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., dry sand or earth), then

place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Use a spark-proof tool.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Do not get on skin or in eyes. Do not ingest or inhale. 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. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
n-Butyl alcohol	(skin - potential for cutaneous absorption); (C 50 ppm); (C 152 mg/m3)	1400 ppm IDLH (10 percent lower explosive limit)	100 ppm TWA; 300 mg/m3 TWA

OSHA Vacated PELs:

n-Butyl alcohol:

No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

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 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear, colorless
Odor: Pungent odor, fuel oil
pH: Not available.
Vapor Pressure: 4 mm Hg @20C
Vapor Density: 2.6 (Air=1)
Evaporation Rate: 0.46 (Butyl acetate=1)
Viscosity: 2.95 mPas @20 d
Boiling Point: 117.6 deg C
Freezing/Melting Point: -89.5 deg C
Decomposition Temperature: Not available.
Solubility: in water: 72g/l @20°C
Specific Gravity/Density: 0.8100
Molecular Formula: C4H10O
Molecular Weight: 74.0694

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid:
High temperatures, incompatible materials, ignition sources.
Incompatibilities with Other Materials:
Aluminum, chromium trioxide, organic peroxides, strong oxidizers.
Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 71-36-3: E01400000
LD50/LC50:
CAS# 71-36-3: Inhalation, rat: LC50 =8000 ppm/4H; Oral, rabbit: LD50 = 3484 mg/kg; Oral, rat: LD50 = 790 mg/kg; Skin, rabbit: LD50 = 3400 mg/kg.
Carcinogenicity:
n-Butyl alcohol -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
Experimental reproductive effects have been observed.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
None.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Goldfish (fresh water) death, 1000 ppm/24H Fathead minnow LC50=1940 mg/L/1H Aquatic plant toxicity =8500 ppm Cell multiplication inhibition test, Pseudomonas putida 650 mg/l, Scenedesmus quadricauda 875 mg/l, Entosiphon sulcatum 55 mg/l (Bringmann, G. et al Water Res. 1980, 14, 231-241).

Environmental Fate:

When released to soil, substance is expected to biodegrade, leach to ground water or volatilize. In water, substance is expected to biodegrade or volatilize. Bioconcentration potential is predicted to be low. Soil Mobility: Substance is moderately to highly mobile (log octanol/ water partition coefficient=0.88).

Physical/Chemical:

Substance reacts in air with hydroxyl radicals (half-life=2.3 days).

Other:

None.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.

RCRA D-Series Maximum Concentration of Contaminants:

None listed.

RCRA D-Series Chronic Toxicity Reference Levels: None listed.

RCRA F-Series: None listed.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 71-36-3: waste number U031 (Ignitable waste).

CAS# 71-36-3 is banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT

Shipping Name: BUTANOLS

Hazard Class: 3

UN Number: UN1120

Packing Group: III

IMO

Shipping Name: BUTANOLS

Hazard Class: 3.3

UN Number: 1120

Packing Group: III

IATA

Shipping Name: BUTANOLS

Hazard Class: 3

UN Number: 1120

Packing Group: III

RID/ADR

Shipping Name: BUTANOLS

Dangerous Goods Code: 3(31C)

UN Number: 1120

Canadian TDG

Shipping Name: BUTANOLS

Hazard Class: 3

UN Number: UN1120

Other Information: FLASHPOINT 35 C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL

TSCA

CAS# 71-36-3 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.

SARA

Section 302 (RQ)

CAS# 71-36-3: final RQ = 5000 pounds (2270 kg)

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 71-36-3: acute, flammable.

Section 313

This material contains n-Butyl alcohol (CAS# 71-36-3, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

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

n-Butyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

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: XN

Risk Phrases:

R 10 Flammable.

R 20 Harmful by inhalation.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

WGK (Water Danger/Protection)

CAS# 71-36-3: 1

Canada

CAS# 71-36-3 is listed on Canada's DSL/NDSL List.

This product does not have a WHMIS classification.

CAS# 71-36-3 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 71-36-3: OEL-AUSTRALIA:TWA 50 ppm (150 mg/m³);Skin. OEL-AUSTRIA:TWA 100 ppm (300 mg/m³). OEL-BELGIUM:STEL 50 ppm (152 mg/m³);Skin. OEL-CZECHOSLOVAKIA:TWA 100 mg/m³;STEL 200 mg/m³. OEL-DENMARK:STEL 50 ppm (150 mg/m³);Skin. OEL-FINLAND:TWA 50 ppm (150 mg/m³);STEL 75 ppm (225 mg/m³);Skin. OEL-FRANCE:STEL 50 ppm (150 mg/m³). OEL-GERMANY:TWA 100 ppm (300 mg/m³). OEL-HUNGARY:TWA 100 mg/m³;STEL 200 mg/m³;Skin. OEL-INDIA:TWA 50 ppm (150 mg/m³);Skin. OEL-JAPAN:STEL 50 ppm (150 mg/m³);Skin. OEL-THE NETHERLANDS:TWA 50 ppm (150 mg/m³);Skin. OEL-THE PHILIPPINES:TWA 100 ppm (300 mg/m³). OEL-RUSSIA:STEL 50 ppm (10 mg/m³). OEL-SWEDEN:TWA 15 ppm (45 mg/m³);STEL 30 ppm (90 mg/m³);Skin. OEL-SWITZERLAND:TWA 50 ppm (150 mg/m³);STEL 100 ppm;Skin. OEL-TURKEY:TWA 100 ppm (300 mg/m³). OEL-UNITED KINGDOM:TWA 50 ppm (150 mg/m³);STEL 50 ppm;Skin. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 1/09/1996 Revision #7 Date: 12/11/1997

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