SAFETY DATA SHEET

BUTANOL (N-BUTANOL)

CAS No.: 71-36-3

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

BUTANOL (n-BUTANOL)
Synonyms: 1-Butanol; n-Butyl alcohol; Propylcarbinol
CAS: 71-36-3

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Solvent (paints, coatings, inks, adhesives), plasticizer/glycol ether intermediate, chemical intermediate for butyl acetate/acrylate esters, extraction solvent. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Flam. Liq. 3	Flammable liquid, Category 3, H226
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Dam. 1	Serious eye damage, Category 1, H318
STOT SE 3	Narcotic effects/respiratory irritation, single exposure, Category 3, H335/H336
STOT RE 2	Specific target organ toxicity, repeated exposure, Category 2, H373

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

Flam. Liq. 3: H226 – Flammable liquid and vapour.
Acute Tox. 4: H302 – Harmful if swallowed.
Skin Irrit. 2: H315 – Causes skin irritation.
Eye Dam. 1: H318 – Causes serious eye damage.
STOT SE 3: H335 – May cause respiratory irritation.
STOT SE 3: H336 – May cause drowsiness or dizziness.
STOT RE 2: H373 – May cause damage to organs (hearing organs) through prolonged or repeated exposure.

Precautionary statements

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P260: Do not breathe vapours.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P370+P378: In case of fire, use foam, dry chemical, CO_2 or water spray to extinguish.
P501: Dispose of the contents/containers in accordance with regulations on hazardous waste.

Other hazards which do not result in classification

Not relevant. Does not meet the PBT/vPvB criteria.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: n-Butanol (technical grade)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 71-36-3	n-Butanol — Flam. Liq. 3: H226; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318; STOT SE 3: H335, H336; STOT RE 2: H373 – Danger	≥ 99%

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Remove the person affected from the area of exposure, provide fresh air and keep at rest. Vapours may irritate the respiratory tract and cause drowsiness/dizziness at high concentrations. Seek medical attention if symptoms persist.

By skin contact

Remove contaminated clothing, wash skin thoroughly with plenty of water and soap. Seek medical attention if irritation persists.

By eye contact

Rinse eyes immediately and thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek IMMEDIATE medical attention – risk of serious eye damage.

By ingestion/aspiration

Do not induce vomiting (risk of aspiration). Rinse the mouth with water. Seek immediate medical attention, showing the SDS of the product.

Most important symptoms/effects, acute and delayed

Acute and delayed effects are indicated in sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Foam (alcohol-resistant), dry chemical powder, carbon dioxide, water spray/fog for cooling containers
Unsuitable: Do not use a solid water jet as it may scatter and spread the fire

Specific hazards arising from the chemical

Flammable liquid and vapour. Vapours may form explosive mixtures with air and travel to an ignition source causing flash-back.

Special protective actions for fire-fighters

Evacuate all non-essential personnel. Intervention only by capable personnel who are trained and aware of the hazards of the product. In all cases wear self-contained breathing apparatus. When intervention in close proximity, wear full protective chemical-resistant suit. After intervention, proceed to clean the equipment (take a shower, remove clothing carefully, clean and check).

Additional provisions

Cool fire-exposed containers with water spray from a safe distance. Approach from upwind. Contain fire-fighting water to prevent environmental release.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Eliminate ignition sources. Ventilate the area. Contain the spill (bunding/absorbent) provided there is no additional risk. Use appropriate PPE and antistatic equipment (see section 8).

For emergency responders

Wear protective equipment. Keep unprotected persons away. See section 8.

Environmental precautions

Avoid release to drains, watercourses or soil. Contain spillage with inert absorbent material. Notify the relevant authority in case of significant environmental release.

Methods and materials for containment and cleaning up

Absorb with inert non-combustible absorbent material (sand, vermiculite) and place in a labelled, closed container for disposal (preferably recovered for recycling).

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Keep away from heat, sparks, open flame and other ignition sources. Use only in well-ventilated areas with explosion-proof electrical equipment. Avoid contact with skin and eyes and avoid inhalation of vapours. Ground and bond containers during transfer.

B. Technical recommendations for the prevention of fires and explosions

Store and handle away from oxidizing agents and ignition sources. Use bonding/grounding for all transfer operations. Keep containers tightly closed when not in use.

C. Technical recommendations on general occupational hygiene

Do not eat or drink during the process; wash hands afterwards with suitable cleaning products.

D. Technical recommendations to prevent environmental risks

Provide tight electrical equipment well protected against corrosion. Avoid atmospheric emissions. Warn people about the dangers of the product. Follow the protective measures given in the exposure controls/personal protection section. In industrial installations, apply the rules for the prevention of major accidents (consult an expert).

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C
Maximum Temp.	35°C (cool, well-ventilated, away from direct sunlight)
Maximum time	24 Months in original sealed packaging

B. General conditions for storage

Store in a cool, dry, well-ventilated area away from heat, ignition sources, direct sunlight and oxidizing agents, in tightly closed containers, in accordance with local flammable liquid storage regulations. For additional information see subsection 10.5.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
n-Butanol CAS: 71-36-3	ACGIH TLV – Ceiling (C, skin notation)	20 ppm

Appropriate engineering controls

It is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding occupational exposure limits, in addition to individual protective equipment (PPE) as needed. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection

Organic vapour cartridge respirator where ventilation is insufficient.

C. Specific protection for the hands

Chemical-resistant gloves (e.g. nitrile, neoprene). Replace at any sign of damage.

D. Eye and face protection

Chemical splash goggles and face shield – risk of serious eye damage.

E. Bodily protection

Flame-retardant / antistatic clothing where flammable atmospheres may be present.

F. Additional emergency measures

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear, mobile liquid
Color	Colorless
Odor	Characteristic alcohol odor
Odour threshold	~0.04–15 ppm (variable)
Volatility	
Boiling point at atmospheric pressure	117.7°C
Vapour pressure at 20°C	~0.58 kPa (4.4 mmHg)
Evaporation rate (n-BuAc = 1)	~0.4 (slower than butyl acetate)
Product Description	
Density / Relative density at 20°C	0.81 g/cm³
Dynamic / Kinematic viscosity at 20°C	~2.95 mPa·s
Concentration	≥ 99%
pH	Not applicable (neutral, non-aqueous)
Vapour density (air = 1)	~2.6
Partition coefficient n-octanol/water (log Pow)	0.88
Solubility in water at 20°C	~77 g/L (moderate)
Decomposition temperature	Not established
Melting point/freezing point	-89°C
Flammability	
Flash Point	35–37°C (closed cup)
Flammability (solid, gas)	Non-applicable (liquid); flammable
Autoignition temperature	340°C
Lower / Upper flammability limit	1.4% / 11.2% (vol. in air)
Particle Characteristics	
Median equivalent diameter	Non-applicable (liquid)

Other information

Explosive properties	Not classified as explosive; vapour/air mixtures are flammable within the flammability limits
Oxidising properties	Not an oxidizer
Corrosive to metals	Not classified
Heat of combustion	~36.1 kJ/g (approx.)
Surface tension at 20°C	~24.6 mN/m
Refraction index	~1.399

10. STABILITY AND REACTIVITY

Reactivity

No reactivity hazard under normal conditions of storage, handling and use. Reacts with strong oxidizing agents, generating heat.

Chemical stability

Chemically stable under the indicated conditions of storage, handling and use.

Possibility of hazardous reactions

Vapours can form explosive mixtures with air. Reaction with strong oxidizers can be vigorous/exothermic. Under recommended conditions no hazardous reactions are expected.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Vapour/air mixtures flammable	Avoid heat/ignition sources	Not applicable	Not applicable

Incompatible materials

Strong Oxidizing Agents	Strong Acids	Ignition Sources
Avoid contact – vigorous/exothermic reaction	Avoid contact	Avoid – flammable liquid/vapour

Hazardous decomposition products

Carbon monoxide and carbon dioxide on combustion; no hazardous decomposition under normal storage.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

Harmful if swallowed. May cause gastrointestinal irritation and central nervous system depression.

B. Inhalation (acute effect)

Vapours may cause irritation of the respiratory tract, headache, dizziness and drowsiness at elevated concentrations. Prolonged/repeated exposure has been associated with effects on hearing organs in animal studies.

C. Contact with skin and eyes (acute effect)

Causes skin irritation and serious eye damage on contact.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not classified.

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

May cause respiratory irritation (H335) and drowsiness or dizziness (H336) due to narcotic vapour effects.

G. Specific target organ toxicity (STOT) – repeated exposure

May cause damage to hearing organs through prolonged or repeated exposure (H373), based on animal inhalation study evidence.

H. Aspiration hazard

Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
n-Butanol (technical grade) CAS: 71-36-3	LD50 oral: 790 mg/kg	Rat
	LD50 dermal: 3400 mg/kg	Rabbit
	LC50 inhalation: >8000 ppm (4h, no mortality reported)	Rat

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under standard GHS criteria.

Toxicity

Identification	Acute Toxicity	Species	Genus
n-Butanol CAS: 71-36-3	LC50: 1740 mg/L (96h)	Pimephales promelas	Fish
	EC50: 1983 mg/L (48h)	Daphnia magna	Crustacean

Persistence and degradability

Readily biodegradable under standard OECD test conditions.

Bioaccumulative potential

Low bioaccumulation potential (log Pow 0.88).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
~30 (low)	~8.8×10⁻⁶ atm·m³/mol	No	Partially dissolves, disperses

Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of Annex XIII.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Preferably recover/recycle by distillation where feasible. Otherwise incinerate in a licensed hazardous waste incinerator with afterburner and emission control. For packaging: drain thoroughly; empty containers may retain flammable vapour.

Refer to national and local regulations on waste management, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	UN1120
14.2 UN proper shipping name	BUTANOLS
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	UN1120
14.2 UN proper shipping name	BUTANOLS
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Marine pollutant	No
14.6 Special precautions for user	EmS Codes: F-E, S-D | Limited quantities: 5 L | Segregation group: Not relevant
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	UN1120
14.2 UN proper shipping name	BUTANOLS
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H373: May cause damage to organs through prolonged or repeated exposure.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); European Chemicals Agency (ECHA) classification and labelling inventory; ACGIH Threshold Limit Values.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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