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Safety data sheet

BASF Safety data sheet
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Product: **n-BUTANOL**

(30034729/SDS_GEN_VN/EN)
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1. Substance/preparation and manufacturer/supplier identification

Product name:
n-BUTANOL

Use: solvent(s)

Manufacturer/supplier:
BASF Vietnam Co. Ltd.
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Sai Gon Ward, Ho Chi Minh City, Vietnam
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International emergency number:
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2. Hazard identification

Classification of the substance and mixture:
Flammable liquids: Cat.3
Acute toxicity: Cat.5 (oral)
Acute toxicity: Cat.5 (dermal)
Skin corrosion/irritation: Cat.2
Serious eye damage/eye irritation: Cat.1
Specific target organ toxicity — single exposure: Cat.3 (Vapours may cause drowsiness and dizziness.)
Specific target organ toxicity — single exposure: Cat.3 (irritating to respiratory system)

Label elements and precautionary statement:

Pictogram:

Signal Word:
Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H335	May cause respiratory irritation.
H303 + H313	May be harmful if swallowed or in contact with skin.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P243	Take action to prevent static discharges.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P264	Wash contaminated body parts thoroughly after handling.
P240	Ground and bond container and receiving equipment.
P242	Use non-sparking tools.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use … to extinguish.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Other hazards which do not result in classification:
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
See section 12 - Results of PBT and vPvB assessment.

3. Composition/information on ingredients

Chemical nature

Substance nature: Substance

n-butanol (Content (W/W): >= 99.8 %)
CAS Number: 71-36-3

Hazardous ingredients

n-butanol		
	Content (W/W): >= 99.8 % - < 100 %	Flam. Liq.: Cat. 3
	CAS Number: 71-36-3	Acute Tox.: Cat. 5 (oral)
		Acute Tox.: Cat. 5 (dermal)
		Skin Corr./Irrit.: Cat. 2
		Eye Dam./Irrit.: Cat. 1
		STOT SE: Cat. 3 (drowsiness and dizziness)
		STOT SE: Cat. 3 (irr. to respiratory syst.)
isobutyl alcohol		
	Content (W/W): > 0 % - <= 0.1 %	Asp. Tox.: Cat. 2
	CAS Number: 78-83-1	Flam. Liq.: Cat. 3
		Acute Tox.: Cat. 5 (oral)
		Acute Tox.: Cat. 5 (dermal)
		Skin Corr./Irrit.: Cat. 2
		Eye Dam./Irrit.: Cat. 1
		STOT SE: Cat. 3 (drowsiness and dizziness)
		STOT SE: Cat. 3 (irr. to respiratory syst.)

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:
Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Note to physician:
Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.
Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Suitable extinguishing media:
dry powder, water spray, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:
water jet

Additional information:
Use extinguishing measures to suit surroundings.

Specific hazards:
Flammable liquid Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

Special protective equipment:
Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:
Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Further information:
Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions:
Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame.Use antistatic tools.

Environmental precautions:
Discharge into the environment must be avoided.

Methods for cleaning up or taking up:
Pick up with suitable appliance and dispose of. Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

Additional information: High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

7. Handling and Storage

Handling

Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:
Avoid all sources of ignition: heat, sparks, open flame. Ground all transfer equipment properly to prevent electrostatic discharge.

Storage

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

8. Exposure controls and personal protection

Components with occupational exposure limits

n-butanol, 71-36-3;
TWA value 20 ppm (ACGIHTLV)
TWA value 150 mg/m3 (OEL (VN))

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
butyl rubber (butyl) - 0.7 mm coating thickness
nitrile rubber (NBR) - 0.4 mm coating thickness
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Tightly fitting safety goggles (splash goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

9. Physical and Chemical Properties

Form:	liquid	
Colour:	colourless	
Odour:	alcohol-like	
Odour threshold:	not determined	
pH value:	4.6 - 5.0 (100 %(m))	
Melting point:	< -90 °C	(ASTM D97)
Boiling point:	119 °C (1,013 hPa)	(OECD Guideline 103)
Flash point:	35 °C	(ISO 2719, closed cup)
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Flammability (solid/gas):	Flammable.	(derived from flash point)
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	355 °C	(DIN 51794)
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Self ignition:	Temperature: 20 °C Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Self heating ability:	not applicable, the product is a liquid	

Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	
Vapour pressure:	< 10 hPa (20 °C)	
Density:	0.8095 g/cm3 (20 °C) 0.7824 g/cm3 (55 °C)	(ASTM D4052)
Relative density:	0.8095 (20 °C)	
Relative vapour density (air):	2.55 (20 °C) Heavier than air.	(calculated)
Solubility in water:	66 g/l (20 °C)	
Solubility (qualitative) solvent(s):	organic solvents soluble	
Partitioning coefficient n-octanol/water (log Pow):	1 (25 °C)	(OECD Guideline 117)
Adsorption/water - soil:	KOC: 3.471; log KOC: 0.54	(calculated)
Surface tension:	69.9 mN/m (20 °C; 1 g/l)	(OECD-Guideline 115, Ring method)
Viscosity, dynamic:	2.947 mPa.s (20 °C)	
Molar mass:	74.12 g/mol	

10. Stability and Reactivity

Conditions to avoid:
No special precautions other than good housekeeping of chemicals.

Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.

Substances to avoid:
strong oxidizing agents

Corrosion to metals: No corrosive effect on metal.

Hazardous reactions:
Reacts with strong oxidizing agents.

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Chemical stability:
The product is stable if stored and handled as prescribed/indicated.

11. Toxicological Information

Routes of exposure

Acute oral toxicity

Experimental/calculated data:
LD50rat (oral): 2,292 mg/kg (OECD Guideline 401)
The European Union (EU) has classified this substance as 'harmful'.

Acute inhalation toxicity

LC50 rat (by inhalation): > 17.76 mg/l 4 h (OECD Guideline 403)
Highest concentration technically achievable. No mortality was observed. The vapour was tested.

LC50 rat (by inhalation): > 24 mg/l > 8000 ppm 4 h (other)
No mortality was observed. The vapour was tested.

Acute dermal toxicity

LD50 rabbit (dermal): 3,430 mg/kg (OECD Guideline 402)

Assessment of acute toxicity

Of low toxicity after short-term skin contact. Virtually nontoxic by inhalation. Of low toxicity after single ingestion. The European Union (EU) has classified this substance as 'harmful' after oral exposure.

Symptoms

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Irritation

Assessment of irritating effects:
Skin contact causes irritation. Risk of serious damage to eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: Irritant. (BASF-Test)

Serious eye damage/irritation rabbit: irreversible damage (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
Mouse Local Lymph Node Assay (LLNA) mouse: Non-sensitizing. (similar to OECD guideline 429)

Germ cell mutagenicity

Assessment of mutagenicity:
The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity

Assessment of carcinogenicity:
No reliable data was available concerning carcinogenic activity. The chemical structure does not suggest a specific alert for such an effect.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity

Assessment of teratogenicity:
Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Experiences in humans

Experimental/calculated data:

High concentrations have a narcotizing effect.
Irritates the respiratory organs.

Specific target organ toxicity (single exposure)

Possible narcotic effects (drowsiness or dizziness). Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organtoxicity was observed after repeated administration to animals.

Aspiration hazard

Some authorities consider isobutyl alcohol, n-primary alcohols and ketones with C3-C13 as "May be harmful if swallowed and enters airways"

12. Ecological Information

Ecotoxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (96 h) 1,376 mg/l, Pimephales promelas (OECD 203; ISO 7346; 92/69/EEC, C.1, static)

Aquatic invertebrates:
EC50 (48 h) 1,328 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants:
EC50 (96 h) 225 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

No observed effect concentration (96 h) 129 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Microorganisms/Effect on activated sludge:
EC10 (17 h) 2,476 mg/l, Pseudomonas putida (DIN 38412 Part 8, aerobic)

Chronic toxicity to fish:
No data available.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d), 4.1 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

Assessment of terrestrial toxicity:

Mobility

Assessment transport between environmental compartments:
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Persistence and degradability

Elimination information:
92 % BOD of the ThOD (20 d) (APHA 'Standard Methods', No. 219, 1971) (aerobic, activated sludge, domestic, non-adapted)
Literature data.

Assessment of stability in water:
No data available.

Information on Stability in Water (Hydrolysis):
No data available.

Bioaccumulation potential

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

Bioaccumulation potential:
No data available.

Other adverse effects

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

Additional information

Other ecotoxicological advice:
The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

13. Disposal Considerations

Dispose of in accordance with national, state and local regulations.

Contaminated packaging:
Disposal must be made according to official regulations.

14. Transport Information

Domestic transport:

UN number or ID number:	UN 1120
UN proper shipping name:	BUTANOLS
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no
Special precautions for user:	None known

Sea transport
IMDG

UN number or ID number:	UN 1120
UN proper shipping name:	BUTANOLS
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	EmS: F-E; S-D

Air transport
IATA/ICAO

UN number or ID number:	UN 1120
UN proper shipping name:	BUTANOLS
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	No Mark as dangerous for the environment is needed

Special precautions for user:	None known

Further information
To products mentioned in chapter 18 of the IBC-Code, no ship type is assigned within this list.

15. Regulatory Information

Other regulations

The SDS is composed base on the Global Harmonization Globally Harmonized System of Classification and Labeling of Chemicals and applicable local chemical regulations as following :
- The Chemical Law.
- The decree No. 113/2017/ND-CP, Circulars and their replacement (if yes).
- The decree 42/2020/ND-CP guiding on dangerous goods (DG) list, transport and licensing of DG by road and inland waterway.
- Other applicable local regulations.

In case there is a replacement of the above decrees and their circulars, we will update all relevant data accordingly.

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Vertical lines in the left hand margin indicate an amendment from the previous version.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.