บริษัท โมเดอนเคมีเคิล จำกัด (สำนักงานใหญ่) (MODERN CHEMICAL CO.,LTD. (Head Office))
82/80 ซอยเอกมัย 22(นวลน้อย) ถ.สุขุมวิท 63 แขวงคลองตันเหนือ เขตวัฒนา กรุงเทพมหานคร 10110 โทร0-2715-0897-9 แฟกซ์.0-2392-3410-3
82/80 Soi Eakmai 22(nuan-noi) 63 Sukhumvit Rd, Klong Ton Nuea, Wattana, Bangkok 10110 E-mail : service@modernchemical.co.th

SAFETY DATA SHEET

N-BUTANOL

1.IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product name:	N-BUTANOL
Recommended use:	Chemical for industry
Manufacturer/Supplier:	**MODERN CHEMICAL CO.,LTD.**
	82/80 Soi Ekamai 22 (Nuannoi), Sukhumvit 63,
	Klong Tan Nuea, Watthana, Bangkok 10110
Telephone No:	0-2715-0897-9, 0-2392-3410-3
Fax No:	0-2715-0908-9, 0-2391-1571-2
Emergency Telephone No:	0-2715-0897-9, 0-2392-3410-3

2. HAZARDS IDENTIFICATION

Label elements

Pictogram

Signal word Danger

Hazard statement(s)

1.) Highly flammable liquid and vapour.

2.) Causes skin irritation.

3.) May be fatal if swallowed and enters airways.

4.) May cause drowsiness or dizziness.

5.) Toxic to aquatic life with long lasting effects.

6.) May damage the unborn child. Suspected of damaging fertility.

Precautionary statement(s)

1.) Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

2.) Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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3.) Avoid release to the environment.

4.) IF SWALLOWED: call a doctor/physician. Do NOT induce vomiting.

5.) IF IN EYES: Rinse cautiously with water for 15 minutes.

6.) IF ON SKIN Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonym: n-Butyl alcohol, n-Propyl carbinol, Butylic alcohol, 1-Butanol, 1-Hydroxybutane

Ingredients	% (w/w)	CAS NO.
N-BUTANOL	100	71-36-3

4. FIRST AID MEASURES

General advice: Show this safety data sheet to the doctor in attendance.

Inhalation: Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not berathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.

Skin contact: Remove contaminated clothing and wash affected skin with soap and water. Consult a physicial.

Eye contact: If substance has got into the eyes, immediately wash out with plenty of water for at least 15 minutes. Obtain medical attention.

Ingestion: Rinse mouth. Do not induce vomiting. Keep patient warm, In case of shorthess of breath, give oxygen. Apply respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:

Use water spray, alcohol – resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media:

No data available

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Specific hazards arising from Chemicals:

No data available

Special protective equipment for fire-fighters:

Wears self contained breathing apparatus for fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Remove all sources of ignition. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

Environmental precautions: Contain or absorb leaking liquid with sand or earth, consults an expert.Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil or vegetation, advise police.

Methods and Material for Containment and Clean Up:

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silicagel). Prevent liquid entering sewers, basements and workpits; vapor maycreate explosive atmosphere. Transfer to covered steel drums. Disposeof promptly.

7. HANDLING AND STORAGE

Precautions for Safe Handling & Product Transfer:

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

Conditions for Safe Storage & Unsuitable Materials:

Keep tightly closed at room temperature in a dry, cool and well ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible material. Store in original container. Electrical equipment should be protected to the appropriate standard.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits : OEL 150 mg/m^3 (50 ppm), 15 min

Appropriate Engineering Controls: The product should only be used in ventilation hoods and fans

Individual Protection Measures

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory and components test and approved under appropriate government standards such as NIOSH (USA) or CEN (EU). Require when vapors/aerosols are generated. Recommended Filter type: Filter A-(P2).

Hand protection: Handle with gloves. In case full contact wear gloves from nitrile rubber material, in splash contact wear gloves from polychloprene material. The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Eye protection: Goggles giving complete protection to eyes.

Skin and body protections: Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end workday. Keep away from food, drink.

9.PHYSICAL AND CHEMICAL PROPERTIES

Form, Color and Odor: liquid, colorless, characteristic	**Evaporation rate :** N/A
Melting Point: -89.5 °C	**Specific gravity :** 0.810-0.820 g/cm3 at 15.4 °C
pH: N/A	**Solubility in water :** Soluble
Boiling: 116-118 °C	**Viscosity :** 2.95 mPa.s
Vapor pressure: 4 mHg at 20 °C	**Vapor density:** 2.6 g/l
Lower explosion limits: 1.4 %Vol	**Upper explosive limit:** 11.2 %Vol
Auto-ignition temperature: 342 °C	**Flash point:** 34°C
Odour threshold: N/A	**Flammability (solid, gas):** N/A
Decomposition temperature: N/A	**Solubility in other solvents:** N/A
n-octanol/water partition coefficient (log P_{ow}): N/A	

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10. STABILITY AND REACTIVITY

Chemical Stability: Stable under recommended storage conditions.

Reactions: No data available

Possibility of Hazardous Reactions: No data available

Conditions to avoid: Moisture,Heat, flames and sparks.

Materials to be avoid: Alkali metals, alkaline earth metals, aluminum, strong oxidizing agents such as CrO3, bases, strong acids, halogens, strong reducing agent.

Hazardous decomposition products: Carbon monoxide, Carbon dioxides (Hazardous decomposition products from under fire condition.)

11. TOXICOLOGICAL INFORMATION

Acute toxicity: LD50 (oral, rat): 790 mg/kg

Sensitization: Irritations of mucous membranes coughing and dyspnoea. Drowziness, drowsiness. Irritations to skin and eyes. Risk of serious damage to eyes. After swallowing, nausea and vomiting. After absorption, CNS disorders with drowziness, drowsiness, inebriation, drop in blood pressure, cardiovascular disorders, depressed respiration and narcosis. Damage of liver and kidneys.

Chronic toxicity: No data available

Further toxicological information: No data available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish: LC50 - Leucicus idus (Golden orfe) – 1200-1700 mg/l- 96 h

Toxicity to Daphnia: EC50 - Daphnia magna- 1983 mg/l/48h

Toxicity Bacterial; EC10- Ps. Putida -2250 mg/l /16h

Biodegradability remark: No data available

Bioaccumulative potential: No data available

Mobility: No data available

Affected in any other way: No data available

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13. DISPOSAL CONSIDERATIONS

Material Disposal: We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Container Disposal: Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently,non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

ADR/RID

UN-No: 1120 Class: 3 Packing group: III

Proper shipping group: BUTANOLS

IMDG

UN-No: 1120 Class: 3 Packing group: III

Marine pollutant : NO

Proper shipping group: BUTANOLS

IATA

UN-No: 1120 Class: 3 Packing group: III

Proper shipping group: BUTANOLS

15. REGULATORY INFORMATION

GHS-Labeling

Hazard statement (s):

No data available

Precautionary statement(s):

No data available

Labelling according to EC Directives:

R - phrase(s):

No data available

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S - phrase(s):

No data available

16. Other Information

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