



SAFETY DATA SHEET

N-BUTANOL

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

Product name: N-BUTANOL

Recommended use: Chemical for industrial

Manufacturer/Supplier: **MODERN CHEMICAL CO.,LTD.**
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2. HAZARDS IDENTIFICATION

Label elements

Pictogram



Signal word

Danger

Hazard statement(s):

- 1.) Flammable liquid and vapors.
- 2.) Harmful if swallowed.
- 3.) Causes skin irritation.
- 4.) Causes serious eye damage.
- 5.) May be fatal if swallowed and enters airways.

Precautionary statement(s):

- 1.) Away from sources of ignition - No smoking.
- 2.) If contacted with eyes, flush with plenty of water before seek for medical attention.



3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonym: n-Butyl alcohol, Proryl carbinol, 1-Hydroxybutane, Butyric alcohol, Butyl alcohol.

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

4. FIRST AID MEASURES

Inhalation:

Remove contamination sources or move victims to fresh air. If breathing stops, have trained personnel administer artificial respiration. Administer cardiopulmonary resuscitation (CPR) immediately if the heart has stopped. Get medical attention immediately.

Skin contact:

Wash contaminated sites tenderly with warm water for at least 20 minutes. Remove contaminated clothing, shoes and leather thoroughly before reuse or abandon. Get medical attention immediately if irritation persists.

Eye contact:

Immediately lift eyelids, flushing eyes with plenty of warm water for at least 20 minutes. Get medical attention immediately.

Ingestion:

Never give anything by mouth to victims will soon lose consciousness or unconsciousness already or with the convulsion. Have conscious victims gargle thoroughly with clear water. Don't induce vomiting. Have victim drink 240~300 ml of water. If vomiting occurs, lean victim forward to reduce the risk of ingesting vomits, and repeat gargling.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:

Carbon dioxide, dry chemical, alcohol foam

Unsuitable Extinguishing Media:

It is unsuitable to extinguish with water.

Specific hazards arising from Chemicals:

Vapors heavier than air will propagate to fire sources and cause flash back.

Special protective equipment for fire-fighters:

Extinguishing staffs should wear respirators protective gloves, and fire-fighting clothing



6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Restrain personnel close to the spill area before totally cleaning out. Confirm the cleaning work be responsible by trained staffs. Wear appropriate personal protective equipments.

Environmental precautions: Ventilate this area. Remove all sources of ignition

Methods and Material for Containment and Clean Up:

Do not touch spilled material. Avoid leaks flushing to sewers or confined areas. Try to stop or reduce leaks in safety condition. Use sand, soil, and inert absorbing agents to block leaks. Small spill: Use the material, not react with spill, to absorb. Contaminated absorbing agents have same risk as spill. Place in covered and labeled containers. Spray water on spilled areas. Use plenty of water to dilute small spill. Large spill: Contact fire control, urgent handling units and suppliers to seek aid.

7. HANDING AND STORAGE

Precautions for Safe Handling & Product Transfer:

This material is flammable and toxic liquid. Engineering control should be applied and make the best use of personal protective equipments when handling. Educate risk of this material and safety training of use. Remove all ignition sources away from heat and incompatible substances. There should be a “No smoking” sign in workspace. Use spark-resistant ventilation system in workplace. Apparatus should be the explosion-proof type.

Conditions for Safe Storage & Unsuitable Materials:

Store in shady, cool, dry, and well-ventilated place that sunshine cannot directly illuminate, and keep away from heat, ignition sources, and incompatible substances. Store pill in containers made of compatible substances. Store are should be labels clearly with on barriers. Permit assigned or trained personnel to enter. Store spill in containers made of compatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits: TWA 100 ppm

Appropriate Engineering Controls: Use spark-resistant and earth-connection ventilation system separately. Direct outside exhaust vents. Supply adequate fresh air to replenish the exhausted air.

**Individual Protection Measures**

| | |
|-----------------------------------|--|
| Respiratory protection: | < 1250 ppm: Stable flow air-feed type, dynamical air purifying with organic vapor cartridges type respiratory protective equipments. < 1400 ppm: Chemical full-type with organic vapor cartridges, dynamical air purifying type, air-feed, portable protective equipments. Unknown: Portable positive-pressure type respiratory protective equipments, positive-pressure full- supply with air-feed type respiratory protective equipments. Escape: Mask with organic vapor cartridges, portable escape-type respiratory protective equipments. |
| Hand protection: | Protective glove materials of Butyl rubber, Teflon, Viton, 4H, Barricade, CPF3, Responder are better |
| Eye protection: | Chemical leak-proof goggles or full-type masks. |
| Skin and body protections: | None. |
| Hygiene measures: | Remove contaminated clothing quickly as possible after the work. Clean clothing before reuse or abandon. Tell cleaning staffs the harmfulness. Forbid smoking or eat in workplace. After handling this material, wash hands thoroughly. Keep workplace clean. |

9. PHYSICAL AND CHEMICAL PROPERTIES

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| Form,Color and Odor : liquid, colourless and characteristic | Evaporation rate : 0.47(N-Butyl Acetate=1) |
| Melting Point : -89.3°C | Specific gravity : 0.810 (water=1) |
| pH : N/A | Solubility in water : 7.3-7.7g/100ml water at 25 °C |
| Boiling : 117-118°C | Viscosity : N/A |
| Vapour pressure : 6.5 mmHg at 25°C | Vapour density : 2.6 (Air=1) |
| Lower explosion limits : 1.2%Vol | Upper explosive limit : 1.4%Vol |
| Auto-ignition temperature : 343°C | Flash point : 37°C |
| Odour threshold : 0.12-11 ppm(monitor), 1-20 ppm (censor) | Flammability (solid, gas) : Not applicable |
| Decomposition temperature : N/A | Solubility in other solvents : N/A |
| n-octanol/water partition coefficient (log P_{ow}) : 0.84 | |



10. STABILITY AND REACTIVITY

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| Chemical Stability: | Stable under ordinary conditions. |
| Reactions: | No data available. |
| Possibility of Hazardous Reactions: | Oxidizing agents (nitrate, perchloric acid, peroxide) and chromic trioxide: Increase fire and explosion risk. Aluminum: React at high temperature. |
| Conditions to avoid: | Statics, sparks and ignition sources. |
| Materials to be avoided: | Oxidants, aluminum, chromic trioxide. |
| Hazardous Decomposition Products: | Carbon monoxide, carbon dioxide. |

11. TOXICOLOGICAL INFORMATION

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|---|--|
| Acute toxicity: | LD50 (Oral, rat): 800-4400 mg/kg LC50 (Inhalation, rat): >8000 ppm -4h |
| Sensitization: | Toxic to eye: Causes serious eye damage Toxic to skin: Causes skin irritation Aspiration hazard: May be fatal if swallowed and enters airways. |
| Chonic toxicity: | Long-term or repetitive contact may cause contact dermatitis (skin dry, red, and chap). |
| Further toxicological information: | No data available. |

12. ECOLOGICAL INFORMATION

| | |
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| Toxicity | |
| Toxicity to fish: | LC50 - Fish: 1910-1940 mg/l - 96h |
| Toxicity to daphnia and other aquatic invertebrates: | EC50 - Aquatic invertebrate (water fleas): 1983 mg/l - 48h |
| Toxicity to algae: | No data available. |
| Toxicity to bacteria: | No data available. |
| Biodegradability Remarks: | When released into water, this material is expected to biodegrade. When released into the air, this material may react with oxyhydrogen radicals and have a half-life of about 2.3 days. Half-life (Air): 8.8 -87.7 hours. Half-life (Water surface): 24-168 hours. |



Half-life (Groundwater): 48-1296 hours.

Half-life (Soil): 24-168 hours.

Bioaccumulative potential: May not accumulate. This material is decomposed in the body and excreted.

Mobility: When released into the soil, this material is expected to permeate through soil or biodegrade, or evaporate.

Affected in any other way: No data available.

13. DISPOSAL CONSIDERATIONS

Material Disposal: Consult references to regulations. Waste disposal is according to the storage condition. Adopt particular incineration or sanitary burying.

Container Disposal: None

14. TRANSPORT INFORMATION

ADR/RID

UN-NO: 1120 Class: 3 Packing group: II

Proper shipping group: Butyl alcohol

IMDG

UN-NO: 1120 Class: 3 Packing group: II

Marine pollutant: NO

Proper shipping group: Butyl alcohol

IATA

UN-NO: 1120 Class: 3 Packing group: II

Proper shipping group: Butyl alcohol

15. REGULATORY INFORMATION

Applicable Regulation:

1. Waste storage and disposal methods and facilities setup standard.
2. General rules of hazardous materials and harmful substances.
3. Road and Traffic Safety Rules.



16. OTHER INFORMATION

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