



MATERIAL SAFETY DATA SHEET

SECTION 1 — PRODUCT IDENTIFICATION

Product identifier: VDS-3000 – Stabilized N-Propyl Bromide

Product Number: 1610, 1611, 1614

Product use: Cleaner-Degreaser, Printed Circuit Boards cleaning, Precision cleaning, Metal cleaning, Carbon removal, Automotive parts cleaning, Drying agent.

Manufacturer's name and address: Refer to supplier

Supplier name and address:

ALBATROSS USA INC./EXPERT WORLDWIDE

36-41 36th Street
Long Island City, New York
United States
11106
718-392-6272

5439 San Fernando Road West
Los Angeles, California
United States
90039
818-543-5850

Emergency Telephone #: Chemtrec (Day or Night) 800-424-9300
(For Chemical Emergency: Spill, Leak, Fire, Exposure or Accident)

This MSDS complies with 29CFR 19190.1200 (Hazard Communication Standard) and WHMIS regulations.
IMPORTANT: Read this MSDS before handling and disposing of this product. Pass this information on to employees, customers, and users of this product.

SECTION 2 — CHEMICAL COMPOSITION/HAZARDOUS INGREDIENTS

Ingredients	CAS #	% (weight)	Exposure Limit (ppm)
n-Propyl bromide	106-94-5	94	*
t-Butanol	75-65-0	1	100 ppm
1,2-Epoxybutane	106-88-7	1	400 ppm
N-Propanol	71-23-8	4	200 ppm

*Not established by OSHA. Independent sources recommend a TLV of 100 ppm. The E.P.A. recommends that use of nPB adhere to an acceptable exposure limit of 25 ppm over an eight-hour time weighted average.

Chemical Family: Alkyl Bromide

CAS No.: Mixture

SECTION 3 — HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Target organs: Eyes, skin, respiratory system, digestive system, central nervous system

Signs and symptoms of short-term (acute) exposure:

Inhalation: Breathing vapours or mists may be harmful. Inhalation may cause irritation to the nose, throat, and respiratory system. Symptoms of overexposure may include headache, nausea, vomiting, dizziness, loss of co-ordination, coughing, and shortness of breath (CNS depression). In confined or poorly ventilated areas where the vapour concentration is very high, vapours can rapidly accumulate and cause unconsciousness and death.

Skin contact: Skin contact may cause mild irritation. Symptoms may include slight swelling and redness. Direct skin contact may result in absorption, but absorption does not occur quickly and symptoms of toxicity are not anticipated under normal conditions of use.

Eye contact: Direct eye contact may cause moderate irritation. Symptoms may include stinging, tearing, redness and swelling.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation and symptoms such as nausea, vomiting, headaches, and dizziness (CNS depression). This product presents an aspiration hazard.

Effects of long-term (chronic) exposure: Prolonged or repeated skin exposure may cause moderate irritation, redness, burning, drying and cracking of the skin (dermatitis). Prolonged overexposure may cause liver and kidney damage, and blood system effects.

Other important hazards: This product may be aspirated into the lungs after ingestion resulting in life-threatening lung damage.

SECTION 4 — FIRST AID MEASURES

Inhalation: Immediately remove person to fresh air. If breathing stops, provide rescue breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Obtain medical attention immediately.

Skin contact: Wash skin with mild soap and running water, while removing contaminated clothing. If irritation persists, obtain medical attention. Launder clothing before re-use.

Eye contact: For exposure to vapours, remove person to fresh air. If irritation or redness develops, flush eyes with water and obtain medical attention. For direct eye contact, flush eyes with running water for at least 15 minutes. Obtain medical attention.

Ingestion: If swallowed, DO NOT induce vomiting. Obtain medical attention immediately. This material is a potential aspiration hazard. If person is drowsy or unconscious, place on left side with head down. Never give anything by mouth to an unconscious person.

SECTION 5 — FIRE FIGHTING MEASURES

Flash point (Method): None

Flammable/Explosion limits (% by volume in air): 4.0 – 8.0

Auto ignition temperature: 490°C for n-propyl bromide

Extinguishing Media: Carbon dioxide, dry chemical powder, alcohol foam or polymer foam (class ABC, BC fire extinguisher). Water may not be effective.

Special Fire Fighting Procedures: Wear self contained breathing apparatus and protective gear to prevent eye and skin contact.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release.

Environmental precautions: Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. Dike far ahead of the spill for later recovery or disposal.

Spill response/Cleanup: Eliminate all sources of ignition and remove any hot metal surfaces. Ventilate area of release. Stop leak if you can do so without risk. Use water spray to reduce vapours. Contain and absorb with non-combustible absorbent material, then place absorbent material into a container for later disposal (see Section 13). Contaminated absorbent material may pose the same hazards as the spilled product. Notify the appropriate authorities as required.

Prohibited materials: None known.

Special spill response procedures: If a spill/release in excess of EPA reportable quantity is made into the environment, immediately notify the national response center (phone: 1-800-424-8002).

DOT/CERCLA Reportable quantity: 1,2-Epoxybutane (RQ 100 lbs.)

SECTION 7 — HANDLING AND STORAGE

- Safe handling procedures:** Use in a well ventilated area. Avoid inhalation of vapours. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. This material can be ignited by ignition sources, heat, sparks, and flame. Eliminate all ignition sources. Bond and ground containers, hoses and piping when transferring liquid. Use caution when opening cap. Keep container tightly closed when not in use.
- Storage requirements:** Store in a cool, dry, well-ventilated area away from all sources of ignition and incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks.
- Incompatible materials:** This product forms combustible and/or explosive mixtures with air and/or oxygen. This product is incompatible with strong acids or bases, oxidizing agents, selected amines, alkali metals, anhydrides, chlorine, ethylene oxide, hydrogen peroxide, and organometallic contaminants.
- Special packaging materials:** Not available.

SECTION 8 — EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Ventilation and engineering controls:** Use general or local exhaust ventilation to meet TLV requirements. Where explosive mixtures are present, use electrical systems that are safe for use.
- Respiratory protection:** Respiratory protection is required if the airborne concentration exceeds the TLV. NIOSH-approved respirators, gas masks, or a self-contained breathing apparatus are recommended depending on the airborne concentration levels.
- Protective gloves:** Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.
- Eye protection:** Safety goggles to prevent direct contact, irritation, or injury.
- Other protective equipment:** Uniform, and eyewash station. **Permissible exposure levels:** See Section 2.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

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| Physical form, colour and odour: Clear, colourless liquid, very mild solvent odour. | |
| Odour threshold: Not Available. | pH: Not Available. |
| Boiling Point : 160°F (71°C) | Specific gravity (@68°F / 20°C): 1.31 – 1.32 |
| Melting/freezing point: Less than -76° F | Coefficient of oil/water distribution: Not Available. |
| Vapour pressure: ~112 mm Hg 20°C | Solubility in water (%): 0.25 g/100ml at 20°C |
| Vapour density (Air=1): ~4.3 | Volatile organic compounds (VOC's): 100% |
| Evaporation rate (nBuOAC=1): | Percent Volatile by Weight: 100 |

SECTION 10 — REACTIVITY AND STABILITY DATA

- Stability and reactivity:** Stable under the recommended storage and handling conditions prescribed. This product forms combustible and/or explosive mixtures with air and/or oxygen. Hazardous polymerization will not occur.
- Conditions to avoid:** Static discharge, friction, heat, open flame, other sources of ignition, direct sunlight and air.
- Materials to avoid:** Incompatible materials (see Section 7).
- Hazardous decomposition products:** Carbon monoxide, carbon dioxide. May release formaldehyde and ethylene glycol in acidic conditions.

SECTION 11 — TOXICOLOGICAL INFORMATION

LD₅₀ (Rat, Oral) N-Propyl bromide: 4260 mg/Kg, 1,2 Epoxybutane: 1180 mg/Kg, t-Butanol: 3500 mg/Kg, Acetonitrile: 2460 mg/Kg

LC₅₀ (Rat Inhalation) N-Propyl Bromide: 253000 mg/m³/0.5 hr

Routes of exposure: Skin contact, eye contact, absorption, inhalation, and ingestion.

Toxicological data: There is no available data for the product itself, only for the ingredients.

Teratogenicity, mutagenicity, other reproductive effects: None known.

Sensitization to material: None known.

Synergistic materials: Not Available.

Conditions aggravated by exposure: Pre-existing skin disorders, lung (asthma-like) disorders, and liver and kidney disorders.

SECTION 12 — ECOLOGICAL INFORMATION

Environmental effects: The product should not be allowed to enter drains or water courses or be deposited where it can affect ground or surface waters.

Important environmental characteristics: N/Av

Aquatic toxicity: There is no data available on the product itself.

SECTION 13 — WASTE DISPOSAL

Handling for disposal: Handle waste according to recommendations in Section 7.

Methods of disposal: Containers should be disposed of in accordance with all applicable federal, provincial, state, and local regulations.

SECTION 14 — TRANSPORTATION INFORMATION

Transportation of Dangerous Goods (TDG) information:

Shipping description: Not Regulated.

49 CFR information: DOT Hazard Class: Not regulated.

International Dangerous Goods information:

ICAO / IATA: Not Regulated.

SECTION 15 — REGULATORY INFORMATION

TSCA information: All components are in full compliance with the TSCA inventory.

SARA

Section 302, 304: None

Section 311, 312: Acute

Section 313 Toxic Chemical: This product contains 1,2 Epoxybutane, t-Butanol and Acetonitrile which are subject to reporting requirements of SARA Section 313, Title III.

RCRA: For disposal of unused material check with local, state and federal environmental agencies.

NFPA, HMIS, WHMIS:

Health 1

Flammability 1
 Reactivity 0
 Personal Protection H

California Proposition 65: This product contains n-propyl bromide which is known to the state of California to cause reproductive toxicity.

SECTION 16 — OTHER INFORMATION

<p>Legend: N/Av – Not Applicable OSHA – Occupational Safety and Health Act TLV – Threshold Limit Value DSL – Domestic Substances List ICAO – International Civil Aviation Organisation CEPA – Canadian Environmental Protection Act IARC – International Agency for Research on Cancer NIOSH – National Institute for Occupational Safety and Health ACGIH – American Conference of Governmental Industrial Hygienists EPA – United States Environmental Protection Agency DOT – United States Department of Transportation CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA) TDG – Canadian Transportation of Dangerous Goods Act and Regulations</p>	<p>N/Av – Not Available Inh – Inhalation TSCA – Toxic Substances Control Act NDSL – Non-Domestic Substances List CFR – United States Code of Federal Regulations AIHA – American Industrial Hygiene Association</p>
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References: ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2001.
 International Agency for Research on Cancer Monographs, Supplement 7, 1988.
 Canadian Centre for Occupational Health and Safety. CHEMINFO / RTECS database (2001-3)
 Material Safety Data Sheets from manufacturer.

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NOTICE:

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