

N-Propyl Bromide

SECTION 1. IDENTIFICATION

Product Identifier	N-Propyl Bromide
Other Means of Identification	1-Bromopropane, Monobromopropane
Product Code(s)	PR3710
Product Family	Organic solution
Recommended Use	Industrial.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	Infotrac, 1-800-535-5053, 24 Hours
SDS No.	0492

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Acute toxicity (Oral) - Category 5; Acute toxicity (Dermal) - Category 5; Skin irritation - Category 2; Eye irritation - Category 2A; Reproductive toxicity - Category 1B; Specific target organ toxicity (single exposure) - Category 2; Specific target organ toxicity (single exposure) - Category 3

Label Elements



Signal Word:
Danger

Hazard Statement(s):

Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.
May damage fertility or the unborn child.
Suspected of damaging fertility or the unborn child.
May cause damage to organs.

Precautionary Statement(s):

Obtain special instructions before use.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands thoroughly after handling.

Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing.
Wear eye protection/face protection.

Response:

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.

Immediately call a POISON CENTRE or doctor.

Store locked up.

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers
1-Bromopropane	106-94-5	>= 94	N-Propyl Bromide
1-Propanol	71-23-8	<= 4	Normal Propane
1,2-Epoxybutane	106-88-7	<= 1	1,2-Butylene Oxide
tert-Butanol	75-65-0	<= 1	t-Butyl Alcohol

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor.

Skin Contact

Immediately wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 15-20 minutes.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Immediately call a Poison Centre or doctor.

Ingestion

Rinse mouth with water. Do not induce vomiting. Immediately call a Poison Centre or doctor.

First-aid Comments

Some of the first-aid procedures recommended here require advanced first-aid training. If exposed or concerned, get medical advice or attention.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled: can irritate the nose and throat. Can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Immediate Medical Attention and Special Treatment

Special Instructions

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

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Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog. Use water to keep non-leaking, fire-exposed containers cool.

Unsuitable Extinguishing Media

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific Hazards Arising from the Product

Heating increases the release of toxic vapour. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a health hazard. Closed containers may rupture violently when heated releasing contents. Highly flammable liquid and vapour. Can ignite at room temperature. Releases vapour that can form explosive mixture with air.

In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; corrosive hydrogen bromide.

Special Protective Equipment and Precautions for Fire-fighters

Use extreme caution. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Knock down vapours or gases with water fog or fine water spray. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Dike and recover contaminated water for appropriate disposal.

Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Emergency responders: evacuate downwind locations. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources if safe to do so. Remove or isolate incompatible materials as well as other hazardous materials.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe in this product. Do not get in eyes, on skin or on clothing. Wear personal protective equipment to avoid direct contact with this chemical. Only use where there is adequate ventilation. Prevent accidental contact with incompatible chemicals. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage

Store in an area that is: dry, well-ventilated, separate from incompatible materials (see Section 10: Stability and Reactivity). Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Store in a closed container. Comply with all applicable health and safety regulations, fire and building codes.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
1-Propanol	100 ppm A4		200 ppm			
1,2-Epoxybutane	Not established		Not established		2 ppm	
tert-Butanol			100 ppm			

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1-Bromopropane	0.1 ppm A3		Not established			
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Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: polyvinyl alcohol, Barrier® (PE/PA/PE), Viton®.

The following materials should NOT be used: butyl rubber, natural rubber, neoprene rubber, nitrile rubber, polyvinyl chloride, Tychem® SL (Saranex™), Tychem® Responder.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Light brown liquid.
Odour	Aromatic
Odour Threshold	Not available
pH	Not available
Melting Point/Freezing Point	-110 °C (-166 °F) (melting); -110 °C (-166 °F) (freezing)
Initial Boiling Point/Range	71 °C (160 °F)
Flash Point	Not available
Evaporation Rate	Not available
Flammability (solid, gas)	Not available
Upper/Lower Flammability or Explosive Limit	9.5% (upper); 3.8% (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	4.25
Relative Density (water = 1)	1.354 at 25 °C
Solubility	Soluble in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	2.1
Auto-ignition Temperature	409 °C (768 °F)
Decomposition Temperature	204 °C (399 °F)
Viscosity	Not available (kinematic); Not available (dynamic)
Other Information	
Physical State	Liquid

SECTION 10. STABILITY AND REACTIVITY

Reactivity

None known.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Vapours may form explosive mixture with air.

Conditions to Avoid

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Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid), strong bases (e.g. sodium hydroxide).

Hazardous Decomposition Products

None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
1-Propanol	> 4000 ppm (rat) (4-hour exposure)	1870 mg/kg (rat)	4050 mg/kg (rabbit)
1,2-Epoxybutane	2050 ppm (rat) (4-hour exposure)	1170 mg/kg (rat)	1743 mg/kg (rabbit)
tert-Butanol		3500 mg/kg (rat)	
1-Bromopropane	17820 ppm (rat) (4-hour exposure)	> 4000 mg/kg (rat)	Not available

LC50 Inhalation - Rat - 30 h - 253 mg/l

LD50 Oral - Rat - 4260 mg/kg

LD50 Intraperitoneal - Rat - 2950 mg/kg

Skin Corrosion/Irritation

No information was located.

Serious Eye Damage/Irritation

No information was located.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause nose and throat irritation, depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Ingestion

May cause damage to organs.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

No information was located.

Respiratory and/or Skin Sensitization

No information was located.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
1-Propanol	Not evaluated	A4	Not Listed	
1,2-Epoxybutane	Group 2B	A3	Reasonably anticipated	
tert-Butanol	Not evaluated	A4	Not Listed	

Key to Abbreviations

Group 2B = Possibly carcinogenic to humans.

A3 = Animal carcinogen.

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A4 = Not classifiable as a human carcinogen.

Reproductive Toxicity

Development of Offspring

May harm the unborn child.

Sexual Function and Fertility

May cause effects on sexual function and/or fertility.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated under US DOT Regulations. Not regulated under IATA Regulations.

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

1-Bromopropane:

Listed on the DSL.

1-Propanol:

Listed on the DSL.

1,2-Epoxybutane:

Listed on the DSL.

tert-Butanol:

Listed on the DSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

1-Bromopropane:

Listed on the TSCA Inventory.

1-Propanol:

Listed on the TSCA Inventory.

1,2-Epoxybutane:

Listed on the TSCA Inventory.

tert-Butanol:

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating	Health - 1	Flammability - 3	Instability - 0
SDS Prepared By	Alphachem Limited		
Phone No.	(905)-821-2995		
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Date of Last Revision	April 28, 2016		
References	CHEMINFO database, Canadian Centre for Occupational Health and Safety (CCOHS). Storchem Inc database.		
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