



MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : n propyl Bromide

Cat No.: A10461

CAS No. : 106-94-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended uses : Laboratory chemicals

Uses advised against: Food, drug, pesticide or biocidal product use.

1.3 Details of the supplier of the safety data sheet

Company : Krishna Solvechem Limited.
B/503, Shayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.

Telephone : +91-22-6123 0222

Email : exports@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-8657457330

SECTION 2: Hazards identification

2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	(Category 2)
Skin corrosion/Irritation	(Category 2)
Serious eye damage/Eye irritation	(Category 2)
Carcinogenicity	(Category 1B)
Reproductive Toxicity	(Category 1B)
Specific target organ toxicity – single exposure	(Category 3)
Target organs – Respiratory system, central nervous system(CNS)	
Specific target organ toxicity – repeated exposure	(Category 2)
Target organs – Liver, Central nervous system(CNS)	

2.2 Label elements

Pictogram :



Signal word Danger

Hazard statement (s) Highly flammable liquid and vapor



Precautionary statement (s)

May cause drowsiness or dizziness
May damage fertility. May damage the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause respiratory irritation
Causes skin irritation
Causes serious eye irritation.

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required.
Wash face, hands and any exposed skin thoroughly after handling. Wear eye/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Inhalation :

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

IF ON SKIN (or hair):

IF ON SKIN : Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention.

Response:

IF EXPOSED OR CONCERNED :Get medical attention/advice.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention

Fire



<p>Hazards not otherwise classified (HNOC)</p>	<p>In case of fire: Use CO₂, dry chemical, or foam for extinction</p> <p>Storage: Store locked up Store in a well-ventilated place. Keep container tightly closed</p> <p>Disposal: Dispose of contents/container to an approved waste disposal plant</p> <p>Harmful to aquatic life with long lasting effects. Harms public health and the environment by destroying ozone in the upper atmosphere. WARNING. Cancer and Reproductive Harm.</p>
---	---

SECTION 3: Composition / information on ingredients

3.1

Component	CAS-No	Weight %
1-Bromopropane	106-94-5	>95

SECTION 4: First aid measures

4.1 Description of first aid measures

General Advice:	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
If inhalation :	Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.
In case of skin contact :	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
In case of eye contact :	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Ingestion :	Do NOT induce vomiting. Call a physician or poison control center immediately.
4.2 Most important symptoms and effects :	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
4.3 Notes to Physician :	Treat symptomatically

SECTION 5: Firefighting effects

5.1 Extinguishing media



Suitable extinguishing media	Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
5.2 Flash Point :	-4.5 °C / 23.9 °F
Method :	No information available
Autoignition Temperature:	490 °C / 914 °F
Explosion Limits:	
Upper	No data available
Lower	4.6 vol %
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Specific Hazards Arising from the Chemical :	Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.
Hazardous Combustion Products :	Carbon monoxide (CO). Carbon dioxide (CO ₂). Hydrogen bromide

5.4 Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.			
<u>NFPA:</u>	Health	Flammability	Instability	Physical hazards
	2	3	0	N/A

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges
6.2 Environmental precautions
Should not be released into the environment. Do not flush into surface water or sanitary sewer system.
6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment

SECTION 7: Handling and storage

7.1 Precautions for safe handling
--



Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

7.2 Conditions for safe storage

Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Incompatible materials. Strong oxidizing agents. Strong bases.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
1-Bromopropane	TWA: 0.1 ppm			TWA: 10 ppm

Legend: ACGIH – American Conference of Governmental Industrial Hygienists

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

8.2 Exposure controls

Personal protective equipment -

Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice..

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: Liquid
b) Odour	aromatic



c) Odour Threshold	No information available
d) pH	No information available
e) Melting point / freezing point	-110 °C / -166 °F
f) Initial boiling point and boiling range	71 °C / 159.8 °F @ 760 mmHg
g) Flash point	-4.5 °C / 23.9 °F
h) Evaporation rate	No information available
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	Upper: No data available Lower: 4.6 vol %
k) Vapour pressure	146 mmHg @ 20 °C
l) Vapour density	4.34
m) Specific Gravity	1.353
n) Solubility	2.5 g/l (20°C)
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	490 °C / 914 °F
q) Decomposition temperature	No information available
r) Viscosity	0.52 mPa.s at 20 °C
s) Molecular formula	C3 H7 Br
t) Molecular Weight	122.99
SECTION 10: Stability and Reactivity	
10.1 Reactive Hazard :	None known, based on information available
10.2 Chemical stability :	Stable under normal conditions.
10.3 Possibility of hazardous reactions :	None under normal processing.
10.4 Conditions to avoid :	Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products.
10.5 Incompatible materials:	Strong oxidizing agents, Strong bases, Metals, Zinc, Aluminum, Alkali metals



10.6 Hazardous decomposition products : Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen bromide

10.7 Hazardous Polymerization Hazardous polymerization does not occur

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Product Information:

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Bromopropane	LD50 > 2000 mg/kg (Rat) LD50 = 3600 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	LC50 = 14374 ppm (Rat) 4 h LC50 = 253 g/m ³ (Rat) 30 min

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation : irritating to eyes, respiratory system and skin

Sensitization: No information available

Carcinogenicity : The table below indicates whether each agency has listed any ingredient as a Carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
1-Bromopropane	106-94-5	Group 2B	Reasonably Anticipated	A3	X	Not listed

IARC (International Agency for Research on Cancer) IARC (International Agency for Research on Cancer)
 Group 1 - Carcinogenic to Humans
 Group 2A - Probably Carcinogenic to Humans
 Group 2B – Possibly Carcinogenic to Humans

NTP: (National Toxicity Program) NTP: (National Toxicity Program)
 Known – Known carcinogen
 Reasonably anticipated – Reasonably anticipated to be a human Carcinogen

(American Conference of Governmental IndustrialHygienists) A1 – Known Human Carcinogen
 A2 – Suspected Human Carcinogen
 A3 – Animal Carcinogen

Mutagenic Effects: No information available.

Reproductive Effects: Contains a known or suspected reproductive toxin

Developmental Effects : No information available

Teratogenicity: No information available.

STOT - single exposure : Respiratory system, Central nervous system(CNS)

STOT - repeated exposure: Liver, Central nervous system(CNS)



Aspiration hazard :	No information available.
Symptoms / effects,both acute and delayed:	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information :	No information available
Other Adverse Effects :	The toxicological properties have not been fully investigated.

SECTION 12: Ecological information

12.1 Ecotoxicity:	Do not empty into drains.			
Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1-Bromopropane	Not listed	LC50: = 67.3 mg/L, 96h flow-through (Pimephalespromelas)	Not listed	Not listed
12.2 Persistence and degradability:	Persistence is unlikely based on information available.			
Bioaccumulation/ Accumulation	No information available			
12.3 Mobility:	Will likely be mobile in the environment due to its volatility. Log Pow: 2.1			

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

14.1 UN number :	DOT: UN2344 TDG: UN2344 IATA: UN2344 IMDG: UN2344			
14.2 UN proper shipping name	DOT : BROMOPROPANES IMDG : BROMOPROPANES IATA : BROMOPROPANES TDG : BROMOPROPANES			
14.3 Transport hazard class(es)	DOT: 3	TDG: 3	IMDG: 3	IATA: 3
14.4 Packaging group:	DOT: II	TDG: II	IMDG: II	IATA: II



SECTION 15: Regulatory information

15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
1-Bromopropane	106-94-5	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories:

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
1-Bromopropane	106-94-5	X	-	203-445-0	X	X	X	X	KE-03707

U.S. Federal Regulations

SARA 313

component	CAS No	Weight %	SARA 313-Threshold values %
1-Bromopropane	106-94-5	>95	0.1

SARA 311/312 Hazard Categories

See section 2 for more information

CWA (Clean Water Act)

Not applicable

Clean Air Act

Not applicable

OSHA - Occupational Safety and Health Administration

Not applicable

CERCLA

Not applicable

California Proposition 65

This product contains the following Proposition 65 chemicals.

component	CAS No	California Prop.65	Prop 65 NSRL	Category
1-Bromopropane	106-94-5	Carcinogen Developmental Female Reproductive Male Reproductive	-	Developmental Carcinogen

15.2 U.S. State Right-to-Know Regulations:



Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1-Bromopropane	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security - This product does not contain the any DHS Chemicals.

Other International Regulations

Mexico – Grade No information available

SECTION 16: Other information

16.1 Prepared By:	Regulatory affairs Krishna Solvechem Ltd
Email:	exports@kscl.co.in
Creation Date:	25-Oct-2010
Revision Date:	11-March-2023
Print Date:	11-March-2023
Revision Summary:	This document has been updated to comply with the US OSHA Haz Com 2012 Standard replacing the current legislation under 29 C FR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16.2 Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.