



MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : n- Butyl bromide
Cat No.: AC106770000; AC106770010; AC106770025; AC106770050;
AC106770500; AC106772500
EC Number : 203-691-9
CAS No. : 109-65-9

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, Sahayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.
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)
Carcinogenicity	(Category 2)
Reproductive toxicity	(Category 1B)
Specific target organ toxicity – single exposure(respiratory tract irritation)	(Category 3)
Specific target organ toxicity – repeated exposure	(Category 2)

2.2 Label elements

Pictogram :



Signal word

Danger

Hazard statement (s)

H225

Highly flammable liquid and vapor



H315	Causes skin irritation
H 335	May cause respiratory irritation
H351	Suspected of causing cancer (if inhaled)
H360FD	May damage fertility. May damage the unborn child (if Inhaled)
H373	May cause damage to organs (liver) through prolonged or repeated exposure (if inhaled)
H411	Toxic to aquatic life with long lasting effects
Precautionary statement (s)	
Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261	Avoid breathing mist/vapors/spray
P280	Wear protective gloves/protective clothing/eye protection/face Protection
Response	
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for Breathing

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0.1\%$



SECTION 3: Composition / information on ingredients

3.1 Substances

Name of substance	1-bromobutane
Molecular formula	C ₄ H ₉ Br
Molar mass	137 g/mol
CAS No	109-65-9
EC No	203-691-9

SECTION 4: First aid measures

4.1 Description of first aid measures

General Advice:	Take off contaminated clothing
If inhalation :	Remove to fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.
In case of skin contact :	Rinse skin with water/shower. If skin irritation persists, call a physician.
In case of eye contact :	Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice
Ingestion :	In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible)

4.2 Most important symptoms and effects : Irritation, cough, Dyspnoea

4.3 Indication of any immediate medical attention and special treatment needed None

SECTION 5: Firefighting effects

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate firefighting measures to the fire surroundings. Water spray, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable Extinguishing Media

Water jet



5.2 Specific Hazards Arising from the Chemical :

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour- air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous Combustion Products :

In case of fire may be liberated : Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen bromide (HBr)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and materials for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid-or universal binding agents)

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid exposure

Measures to prevent fire as well as aerosol and dust generation

Keep away from sources of ignition – No smoking

Take precautionary measures against static discharge. Due to danger of explosion, prevent



leakage of vapors into cellars, flues and ditches. Avoid release to the environment. Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs. When using do not smoke.

7.2 Conditions for safe storage

Keep container tightly closed. Observe hits for combined storage. Ground/bond container and receiving equipment. Use local and general ventilation. Recommended storage temperature 15 -25 °C

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (workplace exposure limits)

This information is not available

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	10,1 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	1,43 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Environmental values

Relevant PNECs and other threshold levels				
End-point	Threshold level	Organism	Environmental compartment	Exposure time
PNEC	9,9 µg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0,99 µg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	0,277 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
PNEC	27,7 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
PNEC	49,5 µg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls



Personal protective equipment -

Eye / Face protection

Use safety goggle with side protection

Skin protection and Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

- type of material

FKM (fluoro rubber)

- material thickness

0,4 mm

- breakthrough times of the glove material

>480 minutes (permeation: level 6)

- other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Flame-retardant protective clothing.

Respiratory protection

Respiratory protection necessary at : Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of >65 °C, Colour code : Brown

Environmental exposure controls

Keep away from drains, surface and ground water

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Clear light brown Liquid
b) Odour	Characteristic
c) Melting point / freezing point	-112 °C (E C H A)
d) Initial boiling point and	101.3 °C (E C H A)



boiling range	
e) Flash point	10 °C (C . c)
f) Evaporation rate	No information available
g) Flammability (solid, gas)	Flammable liquid in accordance with GHS criteria
h) Upper/lower flammability or explosive limits	6.6 vol% (UEL) 2.8 vol% (LEL)
i) Vapour pressure	53 hPa @ 25 °C
j) Density	1.276 g/cm ³ at 20 °C
k) Solubility	0.869 g/l at 25 °C
l) Partition coefficient: n octanol/water	2.75 (ECHA)
m) Auto-ignition temperature	265 °C(ECHA)
n) Decomposition temperature	Not relevant
9.2 Other information	
Information with regard to physical hazard classes	
There is no additional information	
Surface tension	
25.9 mN/m (25 °C) (ECHA)	
Temperature class (EU, acc. To ATEX)	
T3 Maximum permissible surface temperature on the equipment: 200 °C	
SECTION 10: Stability and Reactivity	
10.1 Reactivity :	It's a reactive substance. Risk of ignition. Vapors may form explosive mixtures with air. If heated : Risk of ignition
10.2 Chemical stability :	The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure
10.3 Possibility of hazardous reactions :	Violent reaction with : strong oxidiser Danger of explosion : Alkali metals, Alkaline earth metal
10.4 Conditions to avoid :	Keep away from open flames, hot surfaces and sources of ignition. No smoking
10.5 Incompatible materials:	Different plastics
10.6 Hazardous decomposition products :	Hazardous combustion products : see section 5



SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Shall not be classified as acutely toxic

Acute toxicity					
Exposure route	Endpoint	Value	Species	Method	Source
dermal	LD50	>2.000 mg/kg	rat		ECHA

Skin corrosion/Irritation :	Causes skin irritation
Serious eye damage/eye irritation:	Shall not be classified as seriously damaging to the eye or eye irritant
Respiratory or skin sensitization:	Shall not be classified as a respiratory or skin sensitiser
Germ cell Mutagenicity:	Shall not be classified as germ cell mutagenic
Carcinogenicity:	Suspected of causing cancer (if inhaled)
Reproductive toxicity:	May damage the unborn child (if inhaled). May damage fertility (if inhaled)
STOT - single exposure :	May cause respiratory system
STOT - repeated exposure:	May cause damage to organs (liver) through prolonged or repeated exposure (if inhaled)
Aspiration hazard :	Shall not be classified as presenting an aspiration hazard
Symptoms related to the physical, chemical and toxicological characteristics	
If swallowed	Data are not available
If in eyes	Data are not available
If inhaled	Irritation to respiratory tract, cough, Dyspnoea
If on skin	causes skin irritation
11.2 Endocrine disrupting properties	Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0.1\%$
11.3 Information on other hazards	There is no additional information



SECTION 12: Ecological information

12.1 Toxicity Toxic to aquatic life with long lasting effects

Aquatic toxicity (acute)				
Endpoint	Value	Species	Source	Exposure time
LC50	24,3 mg/l	fish	ECHA	96 h
EC50	99,3 mg/l	aquatic invertebrates	ECHA	48 h
Aquatic toxicity (chronic)				
Endpoint	Value	Species	Source	Exposure time
EC50	270 mg/l	microorganisms	ECHA	5 min

12.2 Persistence and degradability: Theoretical oxygen Demand: 1.46 mg/mg
Theoretical carbon dioxide: 1.285 mg/mg

Bioaccumulative potential Does not significantly accumulate in organisms.

12.3 Mobility: The organic carbon normalized adsorption coefficient 2.387 (ECHA)

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 :

ADR/RID: UN 1126 IMDG: UN 1126 IATA: UN 1126

14.2 UN proper shipping name

ADR/RID : 1-BROMOBUTANE

IMDG : 1-BROMOBUTANE

IATA : 1-Bromobutane

14.3 Transport hazard class(es) ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group: ADR/RID: 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
Butyl bromide	109-65-9	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), Japan (ISHL), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Butyl bromide	109-65-9	X	-	203-691-9	X	X	X	X	X	-

U.S. Federal Regulations

SARA 313 Not applicable

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 does not contain any Proposition 65 chemicals.

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

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Butyl bromide	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

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Butyl bromide	109-65-9	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Butyl bromide	109-65-9	Not applicable	Not applicable	Not applicable	Annex I - Y45

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
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 Limited
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Revision Summary: This document has been updated to comply with the US OSHA Haz Com 2012 Standard replacing the current legislation under 29 C F R 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.