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MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : Isobutyl bromide; 1-Bromo-2-methylpropane
Cat No.: AC168830000; AC168830025; AC168830050; AC168831000;
AC168835000
CAS No. : 78-77-3

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 Ltd.
B/503, Shayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.

Telephone : +91-22-6123 0222

Email : atul@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-22-6123 0222 (10.00am - 7.00pm) [Office hours]

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)
Specific target organ toxicity (single exposure)	(Category 3)
Target Organs - Respiratory system.	

2.2 Label elements

Pictogram :



Signal word Danger

Hazard statement (s) Highly flammable liquid and vapor



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Precautionary statement (s)

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/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
Call a POISON CENTER or doctor/physician if you feel unwell

IF ON SKIN (or hair):

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

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

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage:

Store locked up
Store in a well-ventilated place.
Keep container tightly closed
Store locked up



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	Disposal: Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)	None identified

SECTION 3: Composition / information on ingredients

3.1

Component	CAS-No	Weight %
1-Bromo-2-methylpropane (By GC)	78-77-3	98% Minimum

SECTION 4: First aid measures

4.1 Description of first aid measures

General Advice:	If symptoms persist, call a physician.
If inhalation :	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
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 :	Clean mouth with water and drink afterwards plenty of water.
4.2 Most important symptoms and effects :	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
4.3 Notes to Physician :	Treat symptomatically

SECTION 5: Firefight 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 :	18 °C / 64.4 °F
Method :	No information available



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Autoignition Temperature:	No information available
Explosion Limits:	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Specific Hazards Arising from the Chemical :	Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.
Hazardous Combustion Products :	Carbon monoxide (CO). Carbon dioxide (CO ₂). Hydrogen halides

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.

NFPA:

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges

6.2 Environmental precautions

Should not be released into the environment.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. 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. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. 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



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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.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

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

No protective equipment is needed under normal use conditions

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	No information available
c) Odour Threshold	No information available
d) pH	No information available
e) Melting point / freezing point	-119 °C / -182.2 °F
f) Initial boiling point and	90 - 92 °C / 194 - 197.6 °F @ 760 mmHg



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boiling range	
g) Flash point	18 °C / 64.4 °F
h) Evaporation rate	No information available
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	No data available No data available
k) Vapour pressure	1033 hPa @ 91 °C
l) Vapour density	4.72
m) Specific Gravity	1.260
n) Solubility	Insoluble in water
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	No information available
q) Decomposition temperature	> 108°C.
r) Viscosity	No information available
s) Molecular formula	C4 H9 Br
t) Molecular Weight	137.02
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. Exposure to light. Incompatible products.
10.5 Incompatible materials:	Strong oxidizing agents, Strong bases
10.6 Hazardous decomposition products :	Carbon monoxide (CO), Carbon dioxide (CO ₂), Hydrogen halides
10.7 Hazardous Polymerization	Hazardous polymerization does not occur



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SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information: No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

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

Irritation : No information available

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-Bromo-2-methylpropyl	78-77-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects: No information available.

Reproductive Effects: No information available.

Developmental Effects : No information available.

Teratogenicity: No information available.

STOT - single exposure : Respiratory system

STOT - repeated exposure: None known

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.



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SECTION 12: Ecological information

12.1 Ecotoxicity:	Do not empty into drains.
12.2 Persistence and degradability:	Soluble in water Persistence is unlikely based on information Available. Insoluble in water
Bioaccumulation/ Accumulation	No information available
12.3 Mobility:	Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

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: 2342 IMDG: 2342 IATA: 2342		
14.2 UN proper shipping name	BROMOMETHYLPROPANES		
ADR/RID :	BROMOMETHYLPROPANES		
IMDG :	BROMOMETHYLPROPANES		
IATA :	BROMOMETHYLPROPANES		
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
1-Bromo-2-methylpropane	78-77-3	X	ACTIVE	-

Legend:



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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-Bromo-2-methylpropane	74-96-4	X	-	201-141-2	-	X	X	X	KE-03681

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
1-Bromo-2-methylpropane	-	X	-	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N



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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
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Creation Date: 23-Mar-2012
Revision Date: 19-Jan-2018
Print Date: 19-Jan-2018
Revision Summary: This document has been updated to comply with the US OSHA HazCom 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.