MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : **1,3-Dibromopropane**

Cat No.: **AC155040000; AC155040025; AC155040050; AC155041000; AC155045000**

CAS No. : 109-64-8

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 : +91-8657447330

SECTION 2: Hazards identification

2.1 Classification

CLP Classification – Regulation (EC) No 1272/2008

Physical hazards : based on available data, the classification criteria are not met

Health hazards:

Acute oral toxicity	(Category 4)
Skin corrosion/Irritation	(Category 2)
Serious eye damage/Eye Irritation	(Category 2)
Specific target organ toxicity (single exposure)	(Category 3)
Target organs – Respiratory system.	
Flammable liquids	(Category 3)

2.2 Label elements

Pictogram :

Signal word Warning

Hazard statement (s) Harmful if swallowed

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
Flammable liquid and vapor

Precautionary statement (s)

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
Do not eat, drink or smoke when using this product
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 only non sparking tools
Use explosion – proof electrical/ventilating/lighting equipment
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

Ingestion

IF SWALLOWED : Call a POISON CENTER or doctor / physician if you feel unwell. Rinse mouth.

Storage:

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

	Fire: In case of fire: Use CO2, dry chemical, or foam for extinction **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 %
Propane, 1,3-dibromo- 1,2-Butylene oxide	109-64-8 106-88-7	>95 <0.1

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 ifsymptoms occur.
	In case of skin contact :	Wash off immediately with soap and plenty of water while removing all contaminatedclothes and shoes. Get medical attention.
	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**	Symptoms of overexposure may be 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 (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers
	Unsuitable Extinguishing Media: :	No information available
5.2	**Flash Point :** **Method :**	54 °C / 129.2 °F No information available

	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. 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 (CO2).

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. Thermal decomposition can lead to release of irritating gases and vapors.

	Health	Flammability	Instability	Physical hazards
NFPA:	2	2	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

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. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

7.2	Conditions for safe storage
	Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong bases.

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 only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. 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 StandardEN 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, colorless, yellow
	b) Odour	characteristic
	c) Odour Threshold	No information available
	d) pH	No information available
	e) Melting point / freezing point	-34 °C / -29.2 °F
	f) Initial boiling point and	167 °C / 332.6 °F @ 760 mmHg

boiling range	
g) Flash point	54 °C / 129.2 °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	2.6 hPa @ 20 °C
l) Vapour density	No information available
m) Specific Gravity	1.989
n) Solubility	No information available
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	No information available
q) Decomposition temperature	no information available
r) Viscosity	No information available
s) Molecular formula	C3 H6 Br2
t) Molecular Weight	201.89

SECTION 10: Stability and Reactivity

10.1	**Reactive Hazard :**	None known, based on information available
10.2	**Chemical stability :**	Stable under normal conditions. Hygroscopic
10.3	**Possibility of hazardous reactions :**	None under normal processing.
10.4	**Conditions to avoid :**	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
10.5	**Incompatible materials:**	Strong oxidizing agents, strong bases
10.6	**Hazardous decomposition products :**	Carbon monoxide (CO), Carbon dioxide (CO2)
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
Propane, 1,3-dibromo-	LD50: 315 mg/kg (rat)	Not listed	Not listed
1,2-Butylene oxide	LD50 = 900 mg/kg (Rat)	LD50 1255 - 2546 mg/kg (Rabbit)	LC50 > 25 mg/L (Rat) 1 h

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 ha Any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Propane, 1,3-dibromo-	109-64-8	Not listed	Not listed	Not listed	Not listed	Not listed
1,2-Butylene oxide	106-88-7	Group 2B	Not listed	Not listed	X	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: Symptoms of overexposure may be 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:

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Propane, 1,3-dibromo-	Not listed	LC50: 1.79 mg/L/96h (Fathead minnow) ; LC50: 5.3 mg/L/24h (Pimephales promelas)	Not listed	Not listed
1,2-Butylene oxide	EC50: > 500 mg/L, 72h (Desmodesmus subspicatus)	Not listed	EC50 = 4840 mg/L 17 h	EC50: = 69.8 mg/L, 48h (Daphnia magna)

12.2 Persistence and degradability: Persistence is unlikely

Bioaccumulation/ Accumulation No information available

12.3 Mobility: Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Propane, 1,3-dibromo-	2.37
1,2-Butylene oxide	0.416

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 – No :

DOT: UN1993 **TDG:** UN1993

IATA: UN1993 **IMDG:** UN1993

14.2 Proper Shipping Name :

DOT: Flammable liquid, n. o. s.

TDG: Flammable liquid, n. o. s.

IATA: Flammable liquid, n. o. s.

IMDG: Flammable liquid, n. o. s.

14.3 Hazard Class : **DOT:** 3 **TDG:** 3 **IATA:** 3 **IMDG:** 3

14.4 Packing Group : **DOT:** III **TDG:** III **IATA:** III **IMDG:** III

SECTION 15: Regulatory information

15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
Propane, 1,3-dibromo-	109-64-8	X	ACTIVE	-
1,2-Butylene oxide	106-88-7	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	ISHL	AICS	IECSC	KECL
Propane, 1,3-dibromo-	109-64-8	X	-	203-690-3	X	X	X	X	X	KE-09951
1,2-Butylene oxide	106-88-7	X	-	203-438-2	X	X	X	X	X	KE-04286

U.S. Federal Regulations

SARA 313 Not applicable

Component	CAS No	Weight %	SARA 313 - Threshold Values %
1,2-Butylene oxide	106-88-7	<0.1	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
1,2-Butylene oxide	X		-

OSHA - Occupational Safety and Health Administration — Not applicable

CERCLA — Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
1,2-Butylene oxide	100 lb	-

California Proposition 65 — This product does not contain any Proposition 65 chemicals.

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

Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1,2-Butylene oxide	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y

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

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain DangerousSubstances	REACH Regulation (EC 1907/2006) article 59 - CandidateList of Substances of Very High Concern (SVHC)
1,2-Butylene oxide	-	Use restricted. See item 75. (see link for restriction details)	-

Safety, health and environmental regulation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent OrganicPollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Propane, 1,3-dibromo-	109-64-8	Not applicable	Not applicable	Not applicable	Not applicable
1,2-Butylene oxide	106-88-7	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantitiesfor Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantitiesfor Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Propane, 1,3-dibromo-	109-64-8	Not applicable	Not applicable	Not applicable	Annex I - Y45
1,2-Butylene oxide	106-88-7	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
Krishna Solvechem Ltd

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Creation Date 07-sept-2010

Revision Date: 24-Dec-2021

Print Date: 24-Dec-2021

Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C FR 1910.1200 to align with the Globally Harmonized System ofClassification 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.