



Date of issue: 29/06/2017
Date of revision: 10/05/2021

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Bromoform

SDS No. : 1034E-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Safety Management Dept. of Chemicals

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2B

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1A

Reproductive toxicity: Category 1A

Specific target organ toxicity – single exposure: Category 1 (central nervous system)

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – single exposure: Category 3 (Narcosis)

Specific target organ toxicity – repeated exposure: Category 1 (liver)

Specific target organ toxicity – repeated exposure: Category 2 (liver, central nervous system)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Acute): Category 2

Hazardous to the aquatic environment (Long-term): Category 3

Label elements



Signal word: Danger

HAZARD STATEMENT

Harmful if swallowed

Causes skin irritation

Causes eye irritation

Suspected of causing genetic defects

May cause cancer

May damage fertility or the unborn child

Causes damage to organs after single exposure (central nervous system)

May cause respiratory irritation

May cause drowsiness or dizziness

Causes damage to organs through prolonged or repeated exposure (liver)

May cause damage to organs through prolonged or repeated exposure (liver, central nervous system)



system)

Toxic to aquatic life

Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

Avoid release to the environment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Do not eat, drink or smoke when using this product.

Response

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF exposed or concerned: Call a POISON CENTER or doctor/physician.

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

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

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.

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

IF SWALLOWED: Rinse mouth.

Storage

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

Disposal

Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name: Bromoform

Content (%): 94(min)

Chemical formula: CHBr3

Chemicals No, Japan: 2-40

CAS No.: 75-25-2

MW: 252.73

ECNO: 200-854-6

Note : The figures shown above are not the specifications of the product.

Stabilizing additives

Ethanol 3.0~5.0% (CAS No. 64-17-5)

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)



Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

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.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire/flammable resistant/retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)



Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10. Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Block out light.

Container and packaging materials for safe handling

Glass

8. Exposure controls/personal protection

Control parameters

Adopted value

(Bromoform)

ACGIH(2008) TWA: 0.5ppm (Liver dam; URT & eye irr)

(Ethanol)

ACGIH(2008) STEL: 1000ppm (URT irr)

OSHA-PEL

(Bromoform)

TWA: 0.5ppm, 5mg/m³

(Ethanol)

TWA: 1000ppm, 1900mg/m³

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless to light yellow

Odor: Characteristic odor

Melting point/Freezing point: 8.3°C

Boiling point or initial boiling point: (Bromoform) 149.5°C



Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity: 0.74 mm²/s (15°C)

Solubility:

Solubility in water: 0.1 g/100 ml (20 °C)

n-Octanol/water partition coefficient: log Pow 2.38

Vapor pressure: 0.67 kPa (20°C)

Density and/or relative density: 2.9

Relative vapor density (Air=1): 8.7

Relative density of the Vapor/air – mixture at 20°C (Air = 1): 1.05

No Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Turns yellow on exposure to light and air. (ICSC 0108)

Possibility of hazardous reactions

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen bromide and bromine. Reacts violently with oxidants and bases. Reacts with powdered metals. This generates fire and explosion hazard. Attacks some forms of plastic, rubber and coatings. (ICSC 0108)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Bases, Oxidizing agents, Powdered metals

Hazardous decomposition products

Hydrogen bromide, Bromine

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Bromoform)

rat LD50=933mg/kg(male, female) (DFGOT vol. 7, 1996; ATSDR, 2005; NITE Risk assessment, 2008) et al.

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

(Bromoform)

human irritation (NITE primary risk assessment, 2007); rabbit moderate irritation (PATY 6th, 2012)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Bromoform)



rabbit moderate irritation, recover within 1 or 2 days (PATTY, 6th, 2012; NITE primary risk assessment, 2007)

(Ethanol)

rabbit recover within 7 days (ECETOC TR No.48(2), 1998 et al)

Allergenic and sensitizing effects data is not available.

Germ cell mutagenicity

[GHS Cat. Japan, base data]

(Bromoform)

cat. 2; NITE risk assessment, 2008; IARC 71, 1999; ACGIH, 7th, 2015; ATSDR, 2005; DFGOT vol. 7, 1996; PATTY 6th, 2012; JSOH, 1997

Carcinogenicity

[GHS Cat. Japan, base data]

(Bromoform)

cat.2; ACGIH A3 (ACGIH 7th, 2015)

(Ethanol)

cat.1A; (IARC, 2010)

(Bromoform)

IARC-Gr.3 : Not Classifiable as a Human Carcinogen

(Ethanol)

IARC-Gr.1 : Carcinogenic to humans

(Bromoform)

ACGIH-A3(2008) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

(Ethanol)

ACGIH-A3(2008) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive toxicity

[GHS Cat. Japan, base data]

(Bromoform)

cat. 2; DFGOT vol. 7, 1993; PATTY 6th, 2012; IRIS, 1993; NITE primary risk assessment, 2007; Food Safety Commission Soft drink evaluation report, 2009

(Ethanol)

cat. 1A; human : PATTY 6th, 2012

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Bromoform)

central nervous system (ACGIH 7th, 2001; NITE risk assessment, 2008)

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(Bromoform)

respiratory tract irritation (ACGIH 7th, 2001; NITE risk assessment, 2008)

(Ethanol)

respiratory tract irritation (PATTY 6th, 2012)

[cat.3 (drow./dizz.)]

[GHS Cat. Japan, base data]

(Bromoform)

narcotic effect (ACGIH 7th, 2001; NITE risk assessment, 2008)

(Ethanol)

narcotic effect (PATTY 6th, 2012; SIDS, 2005)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Bromoform)

liver (NITE risk assessment, 2008; MOE risk assessment vol.3: Temporary risk assessment



sheet, 2004; PATTY 6th, 2012; NTP TR350, 1989)

(Ethanol)

liver (DFGOT vol.12, 1999)

[cat.2]

[GHS Cat. Japan, base data]

(Bromoform)

central nervous system (NITE risk assessment, 2008; NTP TR350, 1989)

(Ethanol)

central nervous system (HSDB, Access on Jun. 2013)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Toxic to aquatic life

Harmful to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Ethanol)

Algae (*Chlorella*) EC50=1000mg/L/96hr (SIDS, 2005)

(Bromoform)

Fish (Shiphead minnow) LC50=7.1mg/L/96hr (MOE Japan, 2003; ECETOC TR91, 2003)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Ethanol)

Crustacea (*Ceriodaphnia reticulata*) NOEC=9.6mg/L/10days (SIDS, 2005)

(Bromoform)

Crustacea (*Mysida*) LC50 =24.4mg/L/96hr (NITE primary risk assessment, 2007)

Water solubility

(Ethanol)

miscible (ICSC, 2000)

(Bromoform)

0.1 g/100 ml (20°C) (ICSC, 2009)

Persistence and degradability

(Ethanol)

Degrade rapidly (BOD_Degradation : 89% (Registered chemicals data check & review, 1993))

(Bromoform)

Not degrade rapidly (GC_Ave. Degradation:0% (CSCL DB, 1986))

Bioaccumulative potential

(Ethanol)

log Pow=-0.32 (ICSC, 2000)

(Bromoform)

log Pow=2.38 (ICSC, 2009); BCF=21 (Check & Review, Japan)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.



13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment (– if this is not the intended use).

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No. or ID No.: 2515

UN Proper Shipping Name :

BROMOFORM

Class or division (Transport hazard class) : 6.1

Packing group : III

ERG GUIDE No.: 159

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 2515

Proper Shipping Name :

BROMOFORM

Class or division : 6.1

Packing group : III

IATA Dangerous Goods Regulations

UN No.: 2515

Proper Shipping Name :

BROMOFORM

Class or division : 6.1

Hazard labels : Toxic

Packing group : III

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : yes

MARPOL Annex V – Prevention of pollution by garbage discharge

Carcinogenicity: cat.1, 1A, 1B

Ethanol

Reproductive toxicity: cat.1, 1A, 1B

Ethanol

Specific target organ toxicity – repeated exposure: cat.1

Bromoform

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Z

Ethanol

15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Ethanol; Bromoform

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.



16. Other information**GHS classification and labelling**

Acute Tox. 4: H302 Harmful if swallowed

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2B: H320 Causes eye irritation

Muta. 2: H341 Suspected of causing genetic defects

Carc. 1A: H350 May cause cancer

Repr. 1A: H360 May damage fertility or the unborn child

STOT SE 1: H370 Causes damage to organs after single exposure

STOT SE 3: H335 May cause respiratory irritation

STOT SE 3: H336 May cause drowsiness or dizziness

STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Aquatic Acute 2: H401 Toxic to aquatic life

Aquatic Chronic 3: H412 Harmful to aquatic life with long lasting effects

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2020 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2019).