



MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 12/20/2012

Version 1.0

SECTION 1. Identification

Product identifier

Product number	818702
Product name	Bromoform (stabilised with 2-methyl-2-butene) for synthesis

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

Identified uses	Chemical for synthesis
-----------------	------------------------

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
---------	--

Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
---------------------	--

SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 3, Inhalation, H331

Acute toxicity, Category 4, Oral, H302

Eye irritation, Category 2, H319

Skin irritation, Category 2, H315

Chronic aquatic toxicity, Category 2, H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

Hazard Statements

H331 Toxic if inhaled.

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H315 Causes skin irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements

P273 Avoid release to the environment.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	CHBr ₃ (Hill)
CAS-No.	75-25-2
Molar mass	252.73 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Bromoform (>= 90 % - <= 100 %)

75-25-2

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Immediately apply artificial respiration. If necessary oxygen. Immediately call in physician.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Shortness of breath, Unconsciousness, narcosis, agitation, cardiovascular disorders, Tremors

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:
hydrogen bromide

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Conditions for safe storage, including any incompatibilities

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons. Protected from light.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Bromoform 75-25-2</i>			
ACGIH	Time Weighted Average (TWA):	0.5 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	0.5 ppm 5 mg/m ³	
	Skin designation:		Can be absorbed through the skin.
OSHA_TRANS	PEL:	0.5 ppm 5 mg/m ³	
	Skin designation:		Can be absorbed through the skin.
Z1A	Time Weighted Average (TWA):	0.5 ppm 5 mg/m ³	
	Skin designation (Final Rule Limit applies):		Can be absorbed through the skin.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance/mixture.

Eye/face protection

Safety glasses

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	sweet
Odor Threshold	No information available.
pH	No information available.
Melting point	48.6 °F (9.2 °C)
Boiling point/boiling range	301.1 °F (149.5 °C) at 1,013 mbar
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapor pressure	7.5 hPa at 77 °F (25 °C)
Relative vapor density	No information available.
Relative density	2.89 g/cm ³ at 68 °F (20 °C)
Water solubility	3.2 g/l at 86 °F (30 °C)

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

Partition coefficient: n-octanol/water

log Pow: 2.38

Bioaccumulation is not expected (log Pow <1). (Lit.)

Autoignition temperature

No information available.

Decomposition temperature

No information available.

Viscosity, dynamic

No information available.

Explosive properties

No information available.

Ignition temperature

not combustible

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

Sensitivity to light

Stabilizer

2-methyl-2-butene

Possibility of hazardous reactions

Risk of explosion with:

Acetone, Potassium hydroxide

Exothermic reaction with:

Alkaline earth metals, Bases, strong alkalis

can decompose violently in contact with:

Alkali metals

Powdered metals

Conditions to avoid

no information available

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Target Organs

Eyes

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

Skin

Respiratory system

Central nervous system

Liver

Kidneys

Acute oral toxicity

LD50 rat: 933 mg/kg (RTECS)

Symptoms: Tremors, Shortness of breath

LDLO human: 143 mg/kg (Lit.)

absorption

Acute inhalation toxicity

LC50 rat: 31.7 mg/l; 2 h (External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

Symptoms: Possible damages:, mucosal irritations

absorption

Skin irritation

rabbit

Result: Irritations

(External MSDS)

Causes skin irritation.

Eye irritation

rabbit

Result: Eye irritation

(External MSDS)

Causes serious eye irritation.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

Confirmed animal carcinogen with unknown relevance to

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

humans.

Bromoform

75-25-2

Further information

After absorption:

Tremors, agitation, Unconsciousness, narcosis

pain in:

Gastrointestinal tract

Cannot be excluded:

cardiovascular disorders

Damage to:

Kidney

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Lepomis macrochirus* (Bluegill sunfish): 29 mg/l; 96 h (Lit.)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 46 mg/l; 48 h (Lit.)

EC50 *Daphnia*: 56 mg/l; 24 h (External MSDS)

Persistence and degradability

No information available.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 2.38

Bioaccumulation is not expected (log Pow <1). (Lit.)

Mobility in soil

Distribution among environmental compartments

Adsorption/Soil

log Koc: 2.10

(experimental)

Moderately mobile in soils

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 2515
Proper shipping name	BROMOFORM
Class	6.1
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 2515
Proper shipping name	BROMOFORM
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 2515
Proper shipping name	BROMOFORM
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Harmful if swallowed.

Skin irritant

Eye irritant

Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Acute Health Hazard

Chronic Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

Bromoform

75-25-2

Clean Water Act

MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number

818702

Version 1.0

Product name

Bromoform (stabilised with 2-methyl-2-butene) for synthesis

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

US State Regulations

Massachusetts Right To Know

Ingredients

Bromoform

Pennsylvania Right To Know

Ingredients

Bromoform

New Jersey Right To Know

Ingredients

Bromoform

California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause cancer.

Ingredients

Bromoform

Notification status

TSCA:

On TSCA Inventory

DSL:

All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H302

Harmful if swallowed.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H331

Toxic if inhaled.

H411

Toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue:12/20/2012

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

MATERIAL SAFETY DATA SHEET
according to the Hazard Communication Standard (29 CFR 1910.1200)

Product number 818702

Version 1.0

Product name Bromoform (stabilised with 2-methyl-2-butene) for synthesis

All rights reserved. Millipore and the "M" Mark are registered trademarks of Merck KGaA, Darmstadt, Germany.