

according to Regulation (EC) No. 1907/2006

Creation Date 16-Oct-2009 Revision Date 27-Jan-2024 Revision Number 3

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product Description: <u>1-Bromohexane</u>

Cat No. : A15166

Synonyms n-Hexyl bromide
CAS No 111-25-1
Molecular Formula C6 H13 Br

REACH registration number -

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

## 1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH

Erlenbachweg 2, 76870 Kandel, Germany

Tel: +49 (0) 721 84007 280 Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG Neuhofstrasse 11. CH 4153 Reinach

Tel: +41 (0) 56 618 41 11

https://www.fishersci.ch/ch/en/customer-help-

support/forms/email-us.html

E-mail address begel.sdsdesk@thermofisher.com

## 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:

Tox Info Suisse Emergency Number: 145 (24hr)

Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)

Chemtrec (24h) Toll-Free: 0800 564 402 Chemtrec Local: +41-43 508 20 11 (Zurich)

## **SECTION 2: HAZARDS IDENTIFICATION**

## 2.1. Classification of the substance or mixture

ALFAAA15166

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CLP Classification - Regulation (EC) No 1272/2008

**Physical hazards** 

Flammable liquids Category 3 (H226)

**Health hazards** 

Skin Corrosion/Irritation Category 2 (H315)
Serious Eye Damage/Eye Irritation Category 2 (H319)
Specific target organ toxicity - (single exposure) Category 3 (H335)

**Environmental hazards** 

Chronic aquatic toxicity Category 2 (H411)

Full text of Hazard Statements: see section 16

#### 2.2. Label elements



## Signal Word

## Warning

### **Hazard Statements**

H226 - Flammable liquid and vapor

H335 - May cause respiratory irritation

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H411 - Toxic to aquatic life with long lasting effects

#### **Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P273 - Avoid release to the environment

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

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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

#### 2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

## 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No
				1272/2008

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1-Bromohexane	111-25-1	EEC No. 203-850-2	99	STOT SE 3 (H335)
				Skin Irrit. 2 (H315)
				Eye Irrit. 2 (H319) Aquatic Chronic 2 (H411)
				Aqualle Official 2 (11411)

REACH registration number -

Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

## 4.1. Description of first aid measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

**Ingestion** Do NOT induce vomiting. Get medical attention.

**Inhalation** Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

#### 4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like

headache, dizziness, tiredness, nausea and vomiting

## 4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Symptoms may be delayed.

### **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers. Water mist may be used to cool closed containers.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### 5.2. Special hazards arising from the substance or mixture

Combustible material. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Flammable. Vapors may form explosive mixtures with air.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO2).

#### 5.3. Advice 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.

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## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### 6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Use personal protective equipment as required. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.

#### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

#### 6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

#### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

#### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and flame. Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)

Class 3

Switzerland - Storage of hazardous substances

Storage class - SC 3

https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

## 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### 8.1. Control parameters

## **Exposure limits**

List source(s):

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Component	Latvia	Lithuania	Luxembourg	Malta	Romania
1-Bromohexane		TWA: 0.3 mg/m³ IPRD			
					•
Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey

## Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### **Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

#### Predicted No Effect Concentration (PNEC)

No information available.

#### 8.2. Exposure controls

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

## Personal protective equipment

**Eve Protection** Goggles (European standard - EN 166)

Hand Protection Protective gloves

Γ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
	Viton (R)	See manufacturers	-	EN 374	(minimum requirement)
L		recommendations			

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection No protective

No protective equipment is needed under normal use conditions.

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Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits Large scale/emergency use

are exceeded or if irritation or other symptoms are experienced

Small scale/Laboratory use Maintain adequate ventilation

Prevent product from entering drains. Do not allow material to contaminate ground water **Environmental exposure controls** 

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties

**Physical State** Liquid

Colorless **Appearance** Odor Odorless

**Odor Threshold** No data available Melting Point/Range -85 °C / -121 °F **Softening Point** No data available

**Boiling Point/Range** 154 - 158 °C / 309.2 - 316.4 °F @ 760 mmHg Flammability (liquid) Flammable On basis of test data Not applicable Liquid

Flammability (solid,gas) No data available **Explosion Limits** 

Flash Point 57 °C / 134.6 °F Method - No information available

**Autoignition Temperature** No data available **Decomposition Temperature** No data available No information available pН **Viscosity** No data available Water Solubility Insoluble

No information available

Solubility in other solvents

Partition Coefficient (n-octanol/water)

Component log Pow 1-Bromohexane 3.8

**Vapor Pressure** < 10 mmHg @ 20 °C

**Density / Specific Gravity** 1.170

**Bulk Density** Not applicable Liquid **Vapor Density** 5.7 (Air = 1.0)

Particle characteristics Not applicable (liquid)

## 9.2. Other information

**Molecular Formula** C6 H13 Br **Molecular Weight** 165.07

**Explosive Properties** explosive air/vapour mixtures possible

## SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** No information available. **Hazardous Reactions** No information available.

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10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot

surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Bases.

#### 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO2).

## **SECTION 11: TOXICOLOGICAL INFORMATION**

## 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### **Product Information**

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met

DermalNo data availableInhalationNo data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Bromohexane	-	-	LC50 = 550 g/m <sup>3</sup> (Rat) 30 min

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

**Respiratory**Skin
No data available
No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system.

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects,both acute and Inhalation of high vapor concentrations may cause symptoms like headache, dizziness,

**delayed** tiredness, nausea and vomiting.

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#### 11.2. Information on other hazards

**Endocrine Disrupting Properties** 

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity

**Ecotoxicity effects** 

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 Fish	Water Flea	Freshwater Algae
1-Bromohexane	LC50: = 3.45 mg/L, 96h flow-through (Pimephales		
	promelas)		

#### 12.2. Persistence and degradability

**Persistence** 

Persistence is unlikely.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

## 12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
1-Bromohexane	3.8	No data available

12.4. Mobility in soil Spillage unlikely to penetrate soil The product is insoluble and sinks in water Is not likely

mobile in the environment due its low water solubility.

12.5. Results of PBT and vPvB

assessment

No data available for assessment.

12.6. Endocrine disrupting

properties

**Endocrine Disruptor Information** 

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected substance This product does not contain any known or suspected substance

## **SECTION 13: DISPOSAL CONSIDERATIONS**

## 13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers

retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and

empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

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Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not

empty into drains.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and

regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance,

ADWO) SR 814.600

https://www.fedlex.admin.ch/eli/cc/2015/891/en

## **SECTION 14: TRANSPORT INFORMATION**

## IMDG/IMO

**14.1. UN number** UN1993

14.2. UN proper shipping name Flammable liquid, n.o.s. (1-BROMOHEXANE)

14.3. Transport hazard class(es) 3 14.4. Packing group III

ADR

**14.1. UN number** UN1993

14.2. UN proper shipping nameFlammable liquid, n.o.s.Technical Shipping Name(1-BROMOHEXANE)

14.3. Transport hazard class(es) 3 14.4. Packing group III

IATA

**14.1. UN number** UN1993

14.2. UN proper shipping name Flammable liquid, n.o.s. (1-BROMOHEXANE)

14.3. Transport hazard class(es) 3 14.4. Packing group III

14.5. Environmental hazards Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

## **SECTION 15: REGULATORY INFORMATION**

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

#### **International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
1-Bromohexane	111-25-1	203-850-2	-	-	Х	Х	-	Х	Χ
Component	CASNo	TSCA	TSCA In	ventory	DGI	NDGI	AICS	NZIOC	DICCS

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
1-Bromohexane	111-25-1	Х	ACTIVE	Х	-	Х	Х	Х

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Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH Not applicable

	Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Γ	1-Bromohexane	111-25-1	-	-	-

#### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements
1-Bromohexane	111-25-1	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

#### **National Regulations**

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
1-Bromohexane	WGK2	

#### **Swiss Regulations**

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
1-Bromohexane 111-25-1 ( 99 )	Persistent Organic Pollutants (POPs)		

#### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## **SECTION 16: OTHER INFORMATION**

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H315 - Causes skin irritation

H319 - Causes serious eve irritation

H335 - May cause respiratory irritation

H411 - Toxic to aquatic life with long lasting effects

## Legend

**CAS** - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b)

Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances Substances List

**ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air **Transport Association** 

MARPOL - International Convention for the Prevention of Pollution from

Ships

ATE - Acute Toxicity Estimate VOC - (volatile organic compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Training Advice** 

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Prepared By** Health, Safety and Environmental Department

**Creation Date** 16-Oct-2009 **Revision Date** 27-Jan-2024

**Revision Summary** New emergency telephone response service provider.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

#### 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 a 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

**End of Safety Data Sheet**