

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name ***Allyl bromide, stabilized with 300-1000ppm Propylene oxide***

Stock number: A11766

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

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0


1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240


SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008


 GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

 GHS06 skull and crossbones


Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H331 Toxic if inhaled.


 GHS08 health hazard

Muta. 1A H340 May cause genetic defects.

Carc. 1A H350 May cause cancer.

 GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

 GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Other hazards that do not result in classification Lachrymator

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

Hazard pictograms

    
GHS02 GHS05 GHS06 GHS08 GHS09

Signal word Danger

Hazard-determining components of labelling:

Allyl bromide

(+/-)-Propylene oxide

Hazard statements

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.

H340 May cause genetic defects.

H350 May cause cancer.

H400 Very toxic to aquatic life.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P201 Obtain special instructions before use.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Trade name **Allyl bromide, stabilized with 300-1000ppm Propylene oxide**

(Contd. of page 1)

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Dangerous components:**

CAS: 106-95-6 EINECS: 203-446-6	Allyl bromide Flam. Liq. 2, H225; Acute Tox. 3, H301; Acute Tox. 3, H331; Muta. 1A, H340; Carc. 1A, H350; Skin Corr. 1B, H314; Aquatic Acute 1, H400	99,9%
CAS: 75-56-9 EINECS: 200-879-2 Index number: 603-055-00-4	(+/-)-Propylene oxide Flam. Liq. 1, H224; Muta. 1B, H340; Carc. 1B, H350; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	0,1%

Additional information None known.**SECTION 4: First aid measures****4.1 Description of first aid measures****General information**

Instantly remove any clothing soiled by the product.
Remove breathing apparatus only after soiled clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing Do not induce vomiting; instantly call for medical help.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Toxic if inhaled.

Toxic if swallowed.

May cause cancer.

Suspected of causing cancer by inhalation.

May cause genetic defects.

This product is a lachrymator.

4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing agents CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture

Danger of containers bursting upon heating.
If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen bromide (HBr)

5.3 Advice for firefighters**Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards: Keep away from ignition sources.

6.4 Reference to other sections

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Keep containers tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities**Storage**

Requirements to be met by storerooms and containers: Store in cool location.

Information about storage in one common storage facility:

Store in the dark.

Protect from heat.

Store away from strong bases.

Store away from oxidising agents.

Store away from metals.

Store away from amines.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from the effects of light.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)

Trade name *Allyl bromide, stabilized with 300-1000ppm Propylene oxide*

(Contd. of page 2)

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

106-95-6 Allyl bromide (99,9%)

TLV (USA)	Short-term value: 1,0 mg/m ³ , 0,2 ppm Long-term value: 0,5 mg/m ³ , 0,1 ppm Skin
-----------	---

75-56-9 (+/-)-Propylene oxide (0,1%)

AGW (Germany)	Long-term value: 4,8 mg/m ³ , 2 ppm 2 (I);AGS, X, Y, Sh
TRK (TRGS 900) (Germany)	Long-term value: 6 mg/m ³ , 2,5 ppm
PEL (USA)	Long-term value: 240 mg/m ³ , 100 ppm
REL (USA)	See Pocket Guide App. A
TLV (USA)	Long-term value: 4,8 mg/m ³ , 2 ppm (SEN) NIC-DSEN

Additional information: No data

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.

Recommended filter device for short term use:

Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves Fluorocarbon rubber (Viton)

Penetration time of glove material (in minutes) 480

Glove thickness 0.7 mm

Eye protection:

Tightly sealed safety glasses.

Full face protection

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Odour:	Stench
Odour threshold:	Not determined.
pH-value:	Not determined.

Change in condition

Melting point/Melting range:	-119 °C
Boiling point/Boiling range:	70-71 °C
Sublimation temperature / start:	Not determined

Flash point:	-2 °C
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	295 °C
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.

Danger of explosion: Product is not explosive. However, formation of explosive air/steam mixtures is possible.

Critical values for explosion:

Lower:	4,3 Vol %
Upper:	7,3 Vol %
Steam pressure at 20 °C:	160 hPa
Density at 20 °C	1,398 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water at 20 °C:	<1 g/l
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.

Solvent content:

Organic solvents:	0,0 %
--------------------------	-------

9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No information known.

10.2 Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Reacts with strong oxidising agents

Danger of polymerisation

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials:

Bases
Oxidising agents
Metals
Amines
Heat
Light

(Contd. on page 4)
DE

(Contd. of page 3)

Trade name *Allyl bromide, stabilized with 300-1000ppm Propylene oxide*

Ultraviolet radiation
Free radical initiators

10.6 Hazardous decomposition products:

Carbon monoxide and carbon dioxide
Hydrogen bromide

Additional information: Unless inhibited, the product can polymerize resulting in a temperature and pressure increase that may rupture the container.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Toxic if inhaled.
Toxic if swallowed.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

LD/LC50 values that are relevant for classification:

106-95-6 Allyl bromide

Oral	LD50	120 mg/kg (rat)
Inhalative	LC50/2H	10000 mg/m ³ /2H (rat)

75-56-9 (+/-)-Propylene oxide

Oral	LD50	380 mg/kg (rat)
Dermal	LD50	1245 mg/kg (rabbit)
Inhalative	LC50/4H	9,7 mg/l/4H (rat)

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion:

Causes serious eye damage.
This product is a lachrymator.

Sensitization: No sensitizing effect known.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.

Carcinogenicity:

May cause cancer.

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: No effects known.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Toxic
Corrosive
Carcinogenic
The product can cause inheritable damage.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Very toxic for fish

Additional ecological information:

General notes:

Water danger class 3 (Self-assessment): extremely hazardous for water.

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into soil.

Also poisonous for fish and plankton in water bodies.

Avoid transfer into the environment.

Very toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

Consult state, local or national regulations for proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number

ADR, IMDG, IATA

UN1099

14.2 UN proper shipping name

ADR

IMDG

IATA

1099 ALLYL BROMIDE
ALLYL BROMIDE, MARINE POLLUTANT
ALLYL BROMIDE

(Contd. on page 5)
DE

Trade name **Allyl bromide, stabilized with 300-1000ppm Propylene oxide**

(Contd. of page 4)

14.3 Transport hazard class(es)

ADR

Class Label IMDG 3 (FT1) Flammable liquids.
3+6.1


Class Label IATA 3 Flammable liquids.
3+6.1


Class Label 3 Flammable liquids.
3+6.1

Packing group
ADR, IMDG, IATA I

14.5 Environmental hazards:
Marine pollutant: Yes (P)
Symbol (fish and tree)

14.6 Special precautions for user
Kemler Number: Warning: Flammable liquids.
336
EMS Number: F-E,S-D
Segregation groups Liquid halogenated hydrocarbons

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ): E0
Limited quantities (LQ) 0
Transport category 1
Tunnel restriction code C/E

UN "Model Regulation": UN1099, ALLYL BROMIDE, 3 (6.1), I

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances

All ingredients are listed.

Standard for the Uniform Scheduling of Medicines and Poisons

75-56-9 (+/-)-Propylene oxide

S7

National regulations

Information about limitation of use:

Workers should not be exposed to the hazardous materials contained in this preparation. Exceptions can be made by the authorities in certain exceptional cases.

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Classification according to VbF: A I

Technical instructions (air):

Class	Share in %
III	0,1

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

None of the ingredients is listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

75-56-9 (+/-)-Propylene oxide

0,1%

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

None of the ingredients is listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

None of the ingredients is listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Relevant phrases

H224 Extremely flammable liquid and vapour.

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H331 Toxic if inhaled.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H340 May cause genetic defects.

H350 May cause cancer.

(Contd. on page 6)

Trade name Allyl bromide, stabilized with 300-1000ppm Propylene oxide

(Contd. of page 5)

H400 Very toxic to aquatic life.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

P: Marine Pollutant

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)

Flam. Liq. 1: Flammable liquids, Hazard Category 1

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Acute Tox. 3: Acute toxicity, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Muta. 1A: Germ cell mutagenicity, Hazard Category 1A

Muta. 1B: Germ cell mutagenicity, Hazard Category 1B

Carc. 1A: Carcinogenicity, Hazard Category 1A

Carc. 1B: Carcinogenicity, Hazard Category 1B

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1