

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

1.1 Product identifier

Trade name **Boron trifluoride-tetrahydrofuran complex**

Stock number: L17593

CAS Number:
462-34-0

EC number:
207-325-9

1.2 Relevant identified uses of the substance or mixture and uses advised against. No further relevant information available.

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 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

 GHS08 health hazard

STOT RE 1 H372 Causes damage to the kidneys system through prolonged or repeated exposure. Route of exposure: Inhalation.

 GHS05 corrosion

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

 GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Other hazards that do not result in classification No information known.

2.2 Label elements

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

Hazard pictograms

  
GHS05 GHS07 GHS08

Signal word Danger

Hazard statements

H332 Harmful if inhaled.
H314 Causes severe skin burns and eye damage.
H372 Causes damage to the kidneys system through prolonged or repeated exposure. Route of exposure: Inhalation.

Precautionary statements

P260 Do not breathe dusts or mists.
P303+P361+P353 IF ON SKIN (or hair): 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.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation:

462-34-0 Boron trifluoride-tetrahydrofuran complex

Concentration: ≤100%

Identification number(s):

EC number: 207-325-9

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Instantly remove any clothing soiled by the product.

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 Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Trade name **Boron trifluoride-tetrahydrofuran complex**

(Contd. of page 1)

Harmful if inhaled.
Causes damage to the kidneys system through prolonged or repeated exposure. Route of exposure: Inhalation.
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 Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen fluoride (HF)

Boron oxide

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

6.2 Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods and material for containment and cleaning up:

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

Use neutralising 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

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires: 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: No special requirements.

Information about storage in one common storage facility:

Store away from water.

Store away from strong bases.

Store away from oxidising agents.

Store away from metals.

Further information about storage conditions:

Store under dry inert gas.

This product is moisture sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and keep away from water.

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.

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

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.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations.

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 Latex/chloroprene

Penetration time of glove material (in minutes)

Not determined

10

Glove thickness: 0.6 mm

Eye protection:

Tightly sealed safety glasses.

Full face protection

Safety glasses with side shields / NIOSH (US) or EN 166(EU)

Body protection: Protective work clothing.

Trade name **Boron trifluoride-tetrahydrofuran complex**

(Contd. of page 2)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Odour: Pungent
Odour threshold: Not determined.

pH-value (50 g/l) at 20 °C: 1

Change in condition

Melting point/freezing point: 8-9 °C
Initial boiling point and boiling range: 180 °C
Sublimation temperature / start: Not determined

Flash point: 92 °C
Inflammability (solid, gaseous): Not determined.
Ignition temperature: 250 °C
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Explosive properties: Product is not explosive.

Critical values for explosion:

Lower: 2,3 Vol %
Upper: 17,7 Vol %
Steam pressure: Not determined
Density at 20 °C: 1,268 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.

Solubility in / Miscibility with

Water: Hydrolyzes
Partition coefficient: n-octanol/water: Not determined.

Viscosity:

dynamic: Not determined.
kinematic: Not determined.

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

10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials:

Oxidising agents
Bases
Metals
Water/moisture

10.6 Hazardous decomposition products:

Carbon monoxide and carbon dioxide
Boron oxide
Hydrogen fluoride

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if inhaled.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
Harmful if inhaled.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion:

Causes severe skin burns.
Causes severe skin burns and eye damage.

Eye irritation or corrosion:

Causes serious eye damage.
Causes severe skin burns and eye damage.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Germ cell mutagenicity: No effects known.

Carcinogenicity: EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure:

Causes damage to the kidneys system through prolonged or repeated exposure. Route of exposure: Inhalation.

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.

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.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without proper governmental permits.
Water hazard class 1 (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

(Contd. on page 4)
DE

Trade name **Boron trifluoride-tetrahydrofuran complex**

(Contd. of page 3)

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

UN3265

14.2 UN proper shipping name

ADR

3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Boron trifluoride-tetrahydrofuran complex)
CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Boron trifluoride-tetrahydrofuran complex)

IMDG, IATA

14.3 Transport hazard class(es)

ADR



Class

Label

IMDG, IATA

8 (C3) Corrosive substances.
8



Class

Label

8 Corrosive substances.
8

Packing group

ADR, IMDG, IATA

II

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

Kemler Number:

EMS Number:

Segregation groups

Stowage Category

Stowage Code

Warning: Corrosive substances.

80

F-A,S-B

Acids

B

SW2 Clear of living quarters.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

Transport/Additional information:

ADR

Excepted quantities (EQ):

Limited quantities (LQ)

Excepted quantities (EQ)

E2

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

Transport category

Tunnel restriction code

2

E

IMDG

Limited quantities (LQ)

Excepted quantities (EQ)

1L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation":

UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (BORON TRIFLUORIDE-TETRAHYDROFURAN COMPLEX), 8, II

SECTION 15: Regulatory information

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

Australian Inventory of Chemical Substances Substance is not listed.

Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.

Directive 2012/18/EU

Named dangerous substances - ANNEX I Substance is not listed.

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances) Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

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.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not 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.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

(Contd. on page 5)

DE

Trade name Boron trifluoride-tetrahydrofuran complex

(Contd. of page 4)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety and Health Administration (USA)
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

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