

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

### 1.1 Product identifier

Trade name **Benzotrichloride**

Stock number: A15652

CAS Number:

98-07-7

EC number:

202-634-5

Index number:

602-038-00-9

### 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



GHS06 skull and crossbones

Acute Tox. 2 H330 Fatal if inhaled.



GHS08 health hazard

Carc. 1A H350 May cause cancer.



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H335 May cause respiratory irritation.

### Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R45-23: May cause cancer. Toxic by inhalation.



Xn; Harmful

R22: Harmful if swallowed.



Xi; Irritant

R37/38-41: Irritating to respiratory system and skin. Risk of serious damage to eyes.

Information concerning particular hazards for human and environment: Not applicable

Other hazards that do not result in classification Lachrymator

### 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 GHS06 GHS08

Signal word Danger

#### Hazard statements

H302 Harmful if swallowed.

H330 Fatal if inhaled.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H350 May cause cancer.

H335 May cause respiratory irritation.

#### Precautionary statements

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

P284 [In case of inadequate ventilation] wear respiratory 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.

P320 Specific treatment is urgent (see on this label).

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 **Benzotrìchloride**

(Contd. of page 1)

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

##### CAS# Designation:

98-07-7 Benzotrìchloride

##### Identification number(s):

EC number: 202-634-5

Index number: 602-038-00-9

### 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** Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

**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** CO<sub>2</sub>, 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

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

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

#### 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).

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.

Open and handle container with care.

**Information about protection against explosions and fires:** No information known.

#### 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.

##### 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:

##### 98-07-7 Benzotrìchloride (100,0%)

TRK (TRGS 900) (Germany) Long-term value: 0,1 mg/m<sup>3</sup>, 0,012 ppm

TLV (USA) Ceiling limit: 0,8 mg/m<sup>3</sup>, 0,1 ppm

Skin

**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.

(Contd. on page 3)

Trade name **Benzotrichloride**

(Contd. of page 2)

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.  
**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:** Impervious gloves  
**Penetration time of glove material (in minutes):** Not determined  
**Eye protection:**  
Tightly sealed safety glasses.  
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  
**Colour:** Colourless to pale yellow  
**Smell:** Not determined  
**Odour threshold:** Not determined.

**pH-value:** Not determined.

**Change in condition**

**Melting point/Melting range:** -8 to -5 °C  
**Boiling point/Boiling range:** 90-91 °C (15mm)  
**Sublimation temperature / start:** Not determined

**Flash point:** 97 °C  
**Inflammability (solid, gaseous):** Not determined.  
**Ignition temperature:** Not determined  
**Decomposition temperature:** Not determined  
**Self-inflammability:** Not determined.

**Danger of explosion:** Not determined.

**Critical values for explosion:**

**Lower:** Not determined  
**Upper:** Not determined

**Steam pressure:** Not determined

**Density at 20 °C:** 1,38 g/cm<sup>3</sup>

**Relative density:** Not determined.

**Vapour density:** Not determined.

**Evaporation rate:** Not determined.

**Solubility in / Miscibility with**

**Water:** Not determined

**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:**

Water/moisture

Bases

Oxidising agents

**10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity:**

Harmful if swallowed.

Fatal if inhaled.

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:**

Oral LD50 1300 mg/kg (rat)

**Skin irritation or corrosion:** Causes skin irritation.

**Eye irritation or corrosion:**

This product is a lachrymator.

Causes serious eye damage.

**Sensitization:** No sensitizing effect known.

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

**Carcinogenicity:**

May cause cancer.

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

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

IARC-2A: Probably carcinogenic to humans; limited human evidence; sufficient evidence in experimental animals

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

**Reproductive toxicity:** No effects known.

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

**Specific target organ system toxicity - single exposure:** May cause respiratory irritation.

**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.

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(Contd. on page 4)

Trade name **Benzotrichloride**

(Contd. of page 3)

### 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 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.

Avoid transfer into the environment.

**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**

UN2226

**14.2 UN proper shipping name**

**ADR** 2226 BENZOTRICHLORIDE  
**IMDG, IATA** BENZOTRICHLORIDE

**14.3 Transport hazard class(es)**

**ADR**



**Class**

**Label**

**IMDG, IATA**

8 (C9) 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**

Warning: Corrosive substances.

**Kemler Number:**

80

**Segregation groups**

Acids

**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):**

E2

**Limited quantities (LQ)**

1L

**Transport category**

2

**Tunnel restriction code**

E

**UN "Model Regulation":**

UN2226, BENZOTRICHLORIDE, 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 Drugs and Poisons** Substance is not listed.

**National regulations**

**Information about limitation of use:**

Workers should not be exposed to this hazardous material. 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.

**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)** 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 Material 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:**

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

(Contd. on page 5)

**Trade name Benzotrichloride**

(Contd. of page 4)

IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized 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  
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)

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