

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 14.07.2010

Printing date 14.07.2010

**1 Identification of substance****Product details**

Trade name

**Boron fluoride-acetic acid complex**

Stock number:

A11471, L15079

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification**

Hazard designation:



T Toxic

Information pertaining to particular dangers for man and environment

R 22 Harmful if swallowed.  
R 23 Toxic by inhalation.  
R 34 Causes burns.

GHS label elements

**Danger**

H314 - Causes severe skin burns and eye damage.

**Warning**

H302 - Harmful if swallowed.

Prevention:

Response:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
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.

Storage:

Disposal:

P405 Store locked up.

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

**3 Composition/information on ingredients**

Chemical characterization:

Designation: (CAS#)

Boron fluoride-acetic acid complex (CAS# 373-61-5): 100%

Identification number(s):

EINECS Number:

206-768-5

**4 First aid measures**

General information

After inhalation

Instantly remove any clothing soiled by the product.  
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.

After eye contact

Seek immediate medical advice.

After swallowing

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

Seek immediate medical advice.

**5 Fire fighting measures**

Suitable extinguishing agents

Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:  
Carbon monoxide and carbon dioxide  
Hydrogen fluoride (HF)  
Boron oxide

Protective equipment:

Wear self-contained breathing apparatus.  
Wear full protective suit.**6 Accidental release measures**

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

Measures for environmental protection:

Measures for cleaning/collecting:

Do not allow material to be released to the environment without proper governmental permits.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.

Additional information:

Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.**7 Handling and storage**

Handling

Information 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.

Storage Requirements to be met by storerooms and containers:

Information about storage in one common storage facility:

Unsuitable material for container: ceramic, glass

Further information about storage conditions:

Store away from water.  
Store away from oxidizing agents.  
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.

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

**8 Exposure controls and 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.

**Components with critical values that require monitoring at the workplace:**

Fluorides (as F)  
mg/m<sup>3</sup>

ACGIH TLV	2.5
Austria MAK	2.5
Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5
Russia TWA	2
Denmark TWA	2.5
USA PEL	2.5

**Additional information:**

No data

**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.

Avoid contact with the eyes and skin.

Use breathing protection with high concentrations.

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.

**Breathing equipment:****Protection of hands:****Material of gloves****Eye protection:**

Safety glasses  
Tightly sealed safety glasses.  
Full face protection  
Face protection  
Protective work clothing.

**Body protection:****9 Physical and chemical properties:****General Information**

**Form:** Liquid  
**Colour:** Colourless  
**Smell:** Pungent

**Change in condition**

**Melting point/Melting range:** -47°C  
**Boiling point/Boiling range:** 143-146°C  
**Sublimation temperature / start:** Not determined

**Flash point:** 84°C**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product is not explosive.**Critical values for explosion:**

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

**Steam pressure at 20°C:** 9 hPa**Density at 20°C:** 1.353 g/cm<sup>3</sup>

**Solubility in / Miscibility with Water:** Hydrolyzes

**pH-value (50 g/l) at 20°C:** <1

**Viscosity: dynamic at 20°C:** 53.1 mPas

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**Materials to be avoided:**

Water/moisture  
Bases

**Dangerous reactions:**Oxidizing agents  
No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide  
Hydrogen fluoride  
Boron oxide

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	510 mg/kg (rat)
Inhalative	LC50/4H	1180 mg/m <sup>3</sup> /4H (rat)

**Primary irritant effect: on the skin:**

Corrosive effect on skin and mucous membranes.  
Irritant for skin and mucous membranes.

**on the eye:**

Strong corrosive effect.  
Irritant effect.

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**Sensitization:** No sensitizing effect known. (Contd. of page 2)  
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**12 Ecological information:**

**Additional ecological information:**  
**General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system. Do not allow material to be released to the environment without proper governmental permits. 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.

**13 Disposal considerations**

**Product:**  
**Recommendation:** Consult state, local or national regulations for proper disposal. Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations.

**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)



**ADR/RID-GGVS/E Class:** 8 (C3) Corrosive substances.  
**Kemler Number:** 80  
**UN-Number:** 1742  
**Packaging group:** II  
**Label:** 8  
**Designation of goods:** 1742 BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID  
**Limited quantities (LQ):** LQ22  
**Transport category:** 2  
**Tunnel restriction code:** E

Maritime transport IMDG/GGVSea:



**IMDG/GGVSea Class:** 8  
**UN Number:** 1742  
**Label:** 8  
**Packaging group:** II  
**Marine pollutant:** No  
**Segregation groups:** Acids  
**Correct technical name:** BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID

Air transport ICAO-TI and IATA-DGR:



**ICAO/IATA Class:** 8  
**UN/ID Number:** 1742  
**Label:** 8  
**Packaging group:** II  
**Correct technical name:** BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID

UN "Model Regulation":

UN1742, BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID, 8, II

**15 Regulatory information****Designation according to EC guidelines:****Code letter and hazard designation of product:**

T Toxic

**Risk phrases:**

22 Harmful if swallowed.  
 23 Toxic by inhalation.  
 34 Causes burns.

**Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**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.

**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 data specification sheet:** Health, Safety and Environmental Department.**Contact:** Zachariah Holt

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

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IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labeling 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

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