

**Safety Data Sheet**  
 acc. to OSHA HCS

Page 1/8

Printing date 07/20/2018  
 Reviewed on 07/20/2018  
 Version number: 7

## 1 Identification

- **Product identifier**
- **Trade name:** TBE buffer (10X)
- **Article number:** A3945
- **Application of the substance / the mixture**  
 Chemical analytics  
 Biochemistry  
 Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 AppliChem GmbH  
 Ottoweg 4  
 D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570  
 Fax.: +49 (0)6151 935711  
 msds@appliChem.com

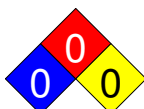
## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
 Repr. 1A H360 May damage fertility or the unborn child.
- **Label elements**
- **GHS label elements**  
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
 Boric Acid
- **Hazard statements**  
 H360 May damage fertility or the unborn child.
- **Precautionary statements**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P308+P313 IF exposed or concerned: Get medical advice/attention.  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 0  
 Fire = 0  
 Reactivity = 0

(Contd. on page 2)

Trade name: TBE buffer (10X)

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = *0
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3 Composition/information on ingredients**

- **Chemical characterization:** Mixtures
- **Description:** aqueous solution

· **Dangerous components:**

10043-35-3	Boric Acid	>5-≤10%
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**4 First-aid measures**

- **Description of first aid measures**
- **General information:**  
Take affected persons out into the fresh air.  
Involve doctor immediately.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Call a doctor immediately.  
Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Rinse out mouth.  
Call a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)  
CO, CO<sub>2</sub>  
Non-combustible.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Contain escaping vapours with water.

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(Contd. on page 3)

Trade name: TBE buffer (10X)

(Contd. of page 2)

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Avoid substance contact.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Clean up affected area.
- **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 disposal information.
- **Protective Action Criteria for Chemicals**

### • PAC-1:

77-86-1	TRIS	18 mg/m <sup>3</sup>
10043-35-3	Boric Acid	6 mg/m <sup>3</sup>
6381-92-6	Ethylenediaminetetraacetic Acid Disodium Salt Dihydrate	30 mg/m <sup>3</sup>

### • PAC-2:

77-86-1	TRIS	190 mg/m <sup>3</sup>
10043-35-3	Boric Acid	23 mg/m <sup>3</sup>
6381-92-6	Ethylenediaminetetraacetic Acid Disodium Salt Dihydrate	330 mg/m <sup>3</sup>

### • PAC-3:

77-86-1	TRIS	1,200 mg/m <sup>3</sup>
10043-35-3	Boric Acid	830 mg/m <sup>3</sup>
6381-92-6	Ethylenediaminetetraacetic Acid Disodium Salt Dihydrate	2,000 mg/m <sup>3</sup>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep respiratory protective device available.  
The product is not flammable.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Open receptacle only under localized extractor facilities.  
Store under lock and key and with access restricted to technical experts or their assistants only.  
Keep container sealed.
- **Recommended storage temperature:** +15 - +25 °C
- **Storage class:** 6.1 D
- **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

(Contd. on page 4)

Trade name: TBE buffer (10X)

(Contd. of page 3)

• **Control parameters**

• **Components with limit values that require monitoring at the workplace:**

**10043-35-3 Boric Acid**

TLV	Short-term value: 6* mg/m <sup>3</sup> Long-term value: 2* mg/m <sup>3</sup> *as inhalable fraction
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• **Additional information:** The lists that were valid during the creation were used as basis.

• **Exposure controls**

• **Personal protective equipment:**

• **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.

• **Breathing equipment:**

Filter ABEK

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• **Material of gloves**

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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• **For the permanent contact gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

Value for the permeation: Level  $\geq 480$  min

• **As protection from splashes gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

Value for the permeation: Level  $\geq 480$  min

• **Eye protection:** Safety glasses

• **Body protection:**

Use protective suit.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

## 9 Physical and chemical properties

• **Information on basic physical and chemical properties**

• **General Information**

• **Appearance:**

Form:

Fluid

Color:

Colorless

• **Odor:**

Odorless

• **Odor threshold:**

Not determined.

• **pH-value at 20 °C (68 °F):**

8.3

(Contd. on page 5)

Trade name: TBE buffer (10X)

(Contd. of page 4)

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|--|---|
| · <b>Change in condition</b><br>Melting point/Melting range: | Undetermined.                                 |
| Boiling point/Boiling range:                                 | Undetermined.                                 |
| · <b>Flash point:</b>  | Not applicable.                               |
| · <b>Flammability (solid, gaseous):</b>                      | Not applicable.                               |
| · <b>Decomposition temperature:</b>                          | Not determined.                               |
| · <b>Auto igniting:</b>                                      | Product is not selfigniting.                  |
| · <b>Danger of explosion:</b>                                | Product does not present an explosion hazard. |
| · <b>Explosion limits:</b><br>Lower:                         | Not determined.                               |
| Upper:   | Not determined.                               |
| · <b>Vapor pressure:</b>                                     | Not determined.                               |
| · <b>Density:</b>  | Not determined.                               |
| · <b>Relative density</b>                                    | Not determined.                               |
| · <b>Vapor density</b>                                       | Not determined.                               |
| · <b>Evaporation rate</b>                                    | Not determined.                               |
| · <b>Solubility in / Miscibility with</b><br>Water:          | Fully miscible.                               |
| · <b>Partition coefficient (n-octanol/water):</b>            | Not determined.                               |
| · <b>Viscosity:</b><br>Dynamic:                              | Not determined.                               |
| Kinematic:   | Not determined.                               |
| · <b>Solvent content:</b><br>Water:                          | 83.0 %  |
| VOC content:   | 0.00 %  |
| · <b>Solids content:</b>                                     | 17.0 %  |
| · <b>Other information</b>                                   | No further relevant information available.    |

## 10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No dangerous reactions known.
- **Hazardous decomposition products:** In the event of fire: See chapter 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**  
Quantitative data on the toxicological effect of this product are not available.

Components	Type	Value	Species
<b>10043-35-3 Boric Acid</b>			
Oral	LD50	2,660 mg/kg (rat)	

(Contd. on page 6)

Trade name: TBE buffer (10X)

(Contd. of page 5)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** Quantitative data on the ecological effect of the product are not available.

Type of test	Effective concentration	Method	Assessment
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<b>10043-35-3 Boric Acid</b>			
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EC50/48 h	133 mg/l (daphnia magna) (ECOTOX Database)
LC50/96 h	50-100 mg/l (Oncorhynchus mykiss) (ECOTOX Database)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Water hazard class 1 (Self-assessment): slightly hazardous for water  
Do not allow to enter waters, waste water, or soil.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Chemicals must be disposed of in compliance with the respective national regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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(Contd. on page 7)

Trade name: TBE buffer (10X)

(Contd. of page 6)

## 14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.
· UN "Model Regulation":	Void

## 15 Regulatory information

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

### · Section 355 (extremely hazardous substances):

None of the ingredients is listed.

### · Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

### · TSCA (Toxic Substances Control Act):

77-86-1 TRIS

10043-35-3 Boric Acid

7732-18-5 water

### · Proposition 65

#### · Chemicals known to cause cancer:

None of the ingredients is listed.

#### · Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

#### · Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

#### · Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

### · Cancerogenity categories

#### · EPA (Environmental Protection Agency)

10043-35-3 Boric Acid

I (oral)

#### · TLV (Threshold Limit Value established by ACGIH)

10043-35-3 Boric Acid

A4

#### · NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

(Contd. on page 8)

**Trade name: TBE buffer (10X)**

(Contd. of page 7)

• **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

• **Hazard pictograms**



GHS08

• **Signal word** Danger

• **Hazard-determining components of labeling:**

Boric Acid

• **Hazard statements**

H360 May damage fertility or the unborn child.

• **Precautionary statements**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

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

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

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Department issuing SDS:** Dept. Compliance

• **Date of preparation / last revision** 07/20/2018 / 6

• **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)

ICAO: International Civil Aviation Organisation

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

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Repr. 1A: Reproductive toxicity – Category 1A

• **\* Data compared to the previous version altered.**