# SAFETY DATA SHEET

**Creation Date** 16-Nov-2010 **Revision Date** 27-Sep-2022 **Revision Number** 8

## 1. Identification

**Product Name** **Tris-Borate-EDTA, 10X Solution (Electrophoresis)**

**Cat No. :** **BP1333-1; BP1333-1LC; BP1333-4; BP1333-20**

**CAS No** 610769-35-2
**Synonyms** Tromethane; 2-Amino-2-(hydroxymethyl)-1,3-propanediol; TRIS; Tris buffer; Tromethamine

**Recommended Use** Laboratory chemicals.
**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

**Emergency Telephone Number**
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

## 2. Hazard(s) identification

**Classification**
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Reproductive Toxicity | Category 1B |

**Label Elements**

**Signal Word**
Danger

**Hazard Statements**
May damage fertility. May damage the unborn child

**Precautionary Statements**
**Prevention**
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
**Response**
IF exposed or concerned: Get medical attention/advice
**Storage**
Store locked up
**Disposal**
Dispose of contents/container to an approved waste disposal plant
**Hazards not otherwise classified (HNOC)**
None identified

## 3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| Water | 7732-18-5 | 80-85 |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | 10-11 |
| Boric acid (H3BO3) | 10043-35-3 | 5-5.5 |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | 0.6 |

## 4. First-aid measures

**General Advice** If symptoms persist, call a physician.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

**Ingestion** Clean mouth with water and drink afterwards plenty of water.

**Most important symptoms and effects** None reasonably foreseeable.

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, $CO_2$, water spray or alcohol-resistant foam.

**Unsuitable Extinguishing Media** No information available

| | |
|---|---|
| **Flash Point** | No information available |
| **Method -** | No information available |
| **Autoignition Temperature** | No information available |
| **Explosion Limits** | |
| **Upper** | No data available |
| **Lower** | No data available |
| **Sensitivity to Mechanical Impact** | No information available |
| **Sensitivity to Static Discharge** | No information available |

**Specific Hazards Arising from the Chemical**
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

**Hazardous Combustion Products**
None known.
**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

| Health | Flammability | Instability | Physical hazards |
|---|---|---|---|
| 2 | 0 | 0 | N/A |

## 6. Accidental release measures

| | |
|---|---|
| **Personal Precautions** | Use personal protective equipment as required. Ensure adequate ventilation. |
| **Environmental Precautions** | Should not be released into the environment. |
| **Methods for Containment and Clean Up** | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. |

## 7. Handling and storage

| | |
|---|---|
| **Handling** | Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing. |
| **Storage.** | Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. None known. |

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|---|---|---|---|---|
| Boric acid (H3BO3) | TWA: 2 mg/m³<br>STEL: 6 mg/m³ | | | TWA: 2 mg/m³<br>STEL: 6 mg/m³ |

*Legend*

*ACGIH - American Conference of Governmental Industrial Hygienists*

| | |
|---|---|
| **Engineering Measures** | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. |

**Personal Protective Equipment**

| | |
|---|---|
| **Eye/face Protection** | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tight sealing safety goggles. Face protection shield. |
| **Skin and body protection** | Wear appropriate protective gloves and clothing to prevent skin exposure. |

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

| | |
|---|---|
| **Physical State** | Liquid |
| **Appearance** | Colorless |
| **Odor** | Odorless |
| **Odor Threshold** | No information available |
| **pH** | 8.2-8.4 25°C |
| **Melting Point/Range** | No data available |
| **Boiling Point/Range** | 219 °C / 426.2 °F |
| **Flash Point** | No information available |
| **Evaporation Rate** | No information available |
| **Flammability (solid,gas)** | Not applicable |
| **Flammability or explosive limits** | |
| **Upper** | No data available |
| **Lower** | No data available |
| **Vapor Pressure** | No information available |
| **Vapor Density** | No information available |
| **Specific Gravity** | 1.02-1.07 |
| **Solubility** | miscible |
| **Partition coefficient; n-octanol/water** | No data available |
| **Autoignition Temperature** | No information available |
| **Decomposition Temperature** | No information available |
| **Viscosity** | No information available |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Stable under normal conditions.

**Conditions to Avoid** Excess heat. Incompatible products.

**Incompatible Materials** None known

**Hazardous Decomposition Products** None under normal use conditions

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Acute Toxicity**

**Product Information**

**Oral LD50** Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

**Dermal LD50** Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

**Vapor LC50** Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Water | - | - | - |
| Tris (hydroxymethyl) aminomethane | LD50 = 5900 mg/kg ( Rat ) | LD50 > 5000 mg/kg ( Rat ) | Not listed |
| Boric acid (H3BO3) | 2660 mg/kg ( Rat ) | > 2000 mg/kg ( Rabbit ) | Not listed |

| | | | |
|---|---|---|---|
| Ethylenediamine tetraacetic acid (EDTA) | 4500 mg/kg ( Rat )<br>>2000 mg/kg ( Rat ) | Not listed | 1 mg/l (rat) |

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|---|---|---|---|---|---|---|
| Water | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Boric acid (H3BO3) | 10043-35-3 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects,both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains. .

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| Boric acid (H3BO3) | - | Gambusia affinis: LC50: 5600 mg/L/96h | - | EC50: 115 - 153 mg/L, 48h (Daphnia magna) |
| Ethylenediamine tetraacetic acid (EDTA) | EC50: = 1.01 mg/L, 72h (Desmodesmus subspicatus) | LC50: 34 - 62 mg/L, 96h static (Lepomis macrochirus)<br>LC50: 44.2 - 76.5 mg/L, 96h static (Pimephales promelas) | Not listed | EC50: = 113 mg/L, 48h Static (Daphnia magna) |

**Persistence and Degradability** Miscible with water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

| Component | log Pow |
|---|---|
| Boric acid (H3BO3) | -0.757 |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

**DOT** Not regulated
**TDG** Not regulated
**IATA** Not regulated
**IMDG/IMO** Not regulated

## 15. Regulatory information

**United States of America Inventory**

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|---|---|---|---|---|
| Water | 7732-18-5 | X | ACTIVE | - |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | X | ACTIVE | - |
| Boric acid (H3BO3) | 10043-35-3 | X | ACTIVE | - |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | X | ACTIVE | - |

**Legend:**
**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|
| Water | 7732-18-5 | X | - | 231-791-2 | X | X | | X | X | KE-35400 |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | X | - | 201-064-4 | X | X | X | X | X | KE-01403 |
| Boric acid (H3BO3) | 10043-35-3 | X | - | 233-139-2 | X | X | X | X | X | KE-03499 |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | X | - | 200-449-4 | X | X | X | X | X | KE-13648 |

**KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**U.S. Federal Regulations**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)**

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---|---|---|---|---|
| Ethylenediamine tetraacetic acid (EDTA) | X | 5000 lb | - | - |

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration Not applicable

**CERCLA** Not applicable

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|---|---|---|
| Ethylenediamine tetraacetic acid (EDTA) | 5000 lb | - |

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Water | - | - | X | - | - |
| Boric acid (H3BO3) | - | X | - | X | - |
| Ethylenediamine tetraacetic acid (EDTA) | X | X | X | - | - |

**U.S. Department of Transportation**
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**Authorisation/Restrictions according to EU REACH**

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---|---|---|---|---|
| Water | 7732-18-5 | - | - | - |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | - | - | - |
| Boric acid (H3BO3) | 10043-35-3 | - | Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) | SVHC Candidate list - 233-139-2 - Toxic for reproduction, Article 57c |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | - | Use restricted. See item 75. (see link for restriction details) | - |

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

*https://echa.europa.eu/authorisation-list*
*https://echa.europa.eu/substances-restricted-under-reach*
*https://echa.europa.eu/candidate-list-table*

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

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---|---|---|---|---|---|
| Water | 7732-18-5 | Listed | Not applicable | Not applicable | Not applicable |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | Listed | Not applicable | Not applicable | Not applicable |
| Boric acid (H3BO3) | 10043-35-3 | Listed | Not applicable | Not applicable | Not applicable |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | Listed | Not applicable | Not applicable | Not applicable |

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---|---|---|---|---|---|
| Water | 7732-18-5 | Not applicable | Not applicable | Not applicable | Not applicable |
| Tris (hydroxymethyl) aminomethane | 77-86-1 | Not applicable | Not applicable | Not applicable | Not applicable |
| Boric acid (H3BO3) | 10043-35-3 | Not applicable | Not applicable | Not applicable | Not applicable |
| Ethylenediamine tetraacetic acid (EDTA) | 60-00-4 | Not applicable | Not applicable | Not applicable | Not applicable |

## 16. Other information

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**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text**

**End of SDS**