

MATERIAL SAFETY DATA SHEET



Conforms to 93/112/EC and ISO 11014-1

1. Chemical Product and Company Identification

Product Name: TBE 10X

Product Number: EC-860

Chemical Names/

Description:

Aqueous solution of buffer salts (EDTA

Manufacturer

National Diagnostics
305 Patton Drive
Atlanta, GA 30336

Telephone Numbers

(800) 526-3867
(404) 699-2121

Emergency Numbers

Chemtrec

(800) 424-9300 (U.S. & Canada)
01-703-527-3887 (outside U.S. & Canada)

2. Composition/Information on Ingredients

Component	% Comp.	CAS #	EINECS #	TLV (Units)
Boric Acid	5 - 10	10043-35-3	233-139-2	10 mg/m ³ total dust
Tris-Base	10 - 15	77-86-1	201-064-4	none established
Ethylenediaminetetraacetic acid, disodium salt dihydrate		6381-92-6	205-358-3	None Established

3. Hazards Identification

Appearance and Odor

Clear, colorless solution

EMERGENCY OVERVIEW - IMMEDIATE HAZARD

Boric Acid

CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. BORIC ACID IS HARMFUL IF SWALLOWED OR INHALED.

Tris-Base

CAUSES IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

EMERGENCY OVERVIEW - CHRONIC HAZARD WARNING:

Boric Acid

PROLONGED ABSORPTION OF BORIC ACID CAUSES WEIGHT LOSS, VOMITING, DIARRHEA, SKIN RASH, CONVULSIONS AND ANEMIA. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER, AND KIDNEYS.

Tris-Base

CHRONIC DERMATITIS MAY FOLLOW SKIN CONTACT.

Potential Health Effects

Inhalation

Boric Acid:

Causes irritation to the mucous membranes of the respiratory tract.

Tris-Base:

Causes irritation to the respiratory tract.

Ingestion

Boric Acid:

Harmful or fatal if ingested in sufficient volume.

Tris-Base:

Causes irritation and reddening to the mucous membranes of the mouth, esophagus, and gastrointestinal tract.

Skin

Boric Acid:

Causes irritation to the skin.

Tris-Base:

Causes irritation to the skin.

Eyes

Boric Acid:

Causes irritation to the eyes.

Tris-Base:

Causes irritation to the eyes.

Signs and Symptoms of Overexposure

Inhalation

Boric Acid:

May be absorbed from the mucous membranes of the respiratory tract, and depending on the amount of exposure could result in symptoms paralleling ingestion.

Tris-Base:

Coughing, shortness of breath.

Ingestion

Boric Acid:

Depending on the amount of exposure, ingestion could result in the development of nausea, vomiting, diarrhea, drowsiness, rash, headache, fall in body temperature, low blood pressure, renal injury, cyanosis, coma, and death. Adult fatal dose reported at 5 to > 30 grams.

Tris-Base:

Symptoms may include nausea, vomiting, and diarrhea. Large oral doses may cause weakness, collapse, blood clotting, and coma. The estimated lethal dose of Tris Base is 50 grams dry solid.

Skin

Boric Acid:

Symptoms of skin absorption parallel inhalation and ingestion.

Tris-Base:

Redness, itching, and pain.

Eyes

Boric Acid:

Redness, itching and pain.

Tris-Base:

Redness, itching, and pain.

Carcinogenicity

Boric Acid:

Not listed as a carcinogen by NTP or IARC.

Tris-Base:

Not listed as a carcinogen by NTP or IARC.

Mutagenicity

Boric Acid:

No information found.

Tris-Base:

No information found.

Reproductive Toxicity

Boric Acid:

Studies of dogs and rats have shown that infertility and damage to testes can result from acute or chronic ingestion of boric acid. Evidence of toxic effects on the human reproductive system is inadequate.

Tris-Base:

No information found.

Teratogenic Effects

Boric Acid:

No information found.

Tris-Base:

No information found.

Routes of Entry

Boric Acid:

Ingestion and inhalation. Not significantly absorbed through the intact skin. Readily absorbed through damaged or burned skin.

Tris-Base:

Ingestion.

Target Organ Statement

Boric Acid:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of this substance.

Tris-Base:

No information available.

4. First Aid Measures

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

Skin

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing

contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes

Immediately flush eyes with plenty of water for at least fifteen minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Flash Point	N.A.	Flammable Limits	N.A.
Flash Point Method	N.A.	Autoignition temperature	N.A.

Extinguishing media

Use media appropriate to the primary cause of fire.

Protective Equipment

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Hazardous Combustion Products

Thermal decomposition products may include toxic oxides of nitrogen and carbon.

Unusual Fire and Explosion Hazards

Not considered an explosion hazard.

NFPA Codes: Health 1 Flammability 0 Reactivity 0

6. Accidental Release Measures

Steps to be taken in case material is released or spilled

Contain and clean up spill immediately, prevent from entering floor drains. Contain liquids using absorbents. Shovel all spill materials into disposal drum. Scrub spill area with detergent, flush with copious amounts of water.

Waste Disposal Method

Disposal must be made in accordance with applicable federal, state, and local regulations.

Personal Precautions

Wear appropriate protective equipment as specified in section 8.

7. Handling and Storage

Handling

Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

Storage

Keep in a tightly closed container, stored in a cooled, dry, ventilated area.

Storage Temperature

Room Temperature

Disposal

Observe all national, state, and local regulations regarding disposal.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits

Component: Boric Acid

ACGIH Threshold Limit Value (TLV): 10 mg/m³ total dust

OSHA Permissible Exposure Limit (PEL): 15 mg/m³ total dust

Component: Tris-Base

ACGIH Threshold Limit Value (TLV): none established

OSHA Permissible Exposure Limit (PEL): none established

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source.

Respiratory Protection

For conditions of use where exposure to the dust or mist is apparent, a full-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator.

Eye Protection

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection

Wear protective gloves and clean body covering clothing.

Other Control Measures

N.A.

9. Physical Properties

Boiling point 220 F

Evaporation Rate 1.0

Melting point N.A.

Solubility in water Soluble

Vapor pressure (mmHg) Water

pH 8.3

Vapor density (Air = 1) N.A.

Specific gravity (H₂O = 1) 1.16

% Volatile by volume 31

10. Stability and Reactivity

Stability

Stable under ordinary conditions of use and storage. If moisture is present, boric acid can be corrosive to iron.

Conditions to Avoid

Heat, incompatibles.

Hazardous Decomposition Products

Boric acid loses chemically combined water upon heating, forming metaboric acid (HBO₂) at 212 - 221F, then pyroboric acid (H₂B₄O₇) at 285 - 320F, and boric anhydride at higher temperatures. The burning of Tris Base may produce carbon monoxide, carbon dioxide, and nitrogen oxides.

Hazardous Polymerization

Will not occur

Incompatibles

Boric Acid:

Potassium, acetic anhydride, alkalis, carbonates, and hydroxides.

Tris-Base:

No incompatibility data found.

Ethylenediaminetetraacetic acid, disodium salt dihydrate:

Oxidizing agents.

11. Toxicological Information

Product LD50 Values

TBE 10X	Oral Rat LD50 (mg/kg):	48364
TBE 10X	Dermal Rabbit LD50 (mg/kg):	none established

Component Cancer List Status

	NTP Carcinogen		IARC Category
	Known	Anticipated	
Boric Acid	No	No	None
Tris-Base	No	No	None
Ethylenediaminetetraacetic acid, disodium salt dihydrate	No	No	None

12. Ecological Information

Boric Acid

The EC50/48-hour values for daphnia with boric acid are over 100 mg/l. This material may be toxic to aquatic life..

Tris-Base

No information found on either the environmental fate or environmental toxicity of this material.

Ethylenediaminetetraacetic acid, disodium salt dihydrate

No information found for either the environmental fate or environmental toxicity of this material.

13. Disposal Considerations

Observe all national, state, and local regulations regarding disposal.

14. Transport Information

D.O.T.

Proper Shipping Name: Not Regulated

Hazard Class: N.A.
UN Number: N.A.
Packing Group: N.A.

I.A.T.A.

Proper Shipping Name: Not Regulated
Hazard Class: N.A.
UN Number: N.A.
Packing Group: N.A.

I.M.O.

Proper Shipping Name: Not Regulated
Hazard Class: N.A.
UN Number: N.A.
Packing Group: N.A.

15. Regulatory Information

United States

TSCA Regulatory Statement

All intentional ingredients are listed on the TSCA Inventory.

SARA 311/312 Hazard Categories

Component	Fire	Pressure	Reactivity	Acute	Chronic
Boric Acid	No	No	No	Yes	Yes
Tris-Base	No	No	No	Yes	No
Ethylenediaminetetraacetic acid, disodium salt dihydrate	No	No	No	Yes	No

Europe

EEC Regulatory

All intentional ingredients are listed on the European EINECS Inventory.

16. Other Information

NFPA Codes: Health 1 Flammability 0 Reactivity 0

MANUFACTURER DISCLAIMER: The information given herein is offered in good faith as accurate, but without guarantee. Conditions of the use and suitability of the product for particular uses are beyond our control. All risks of use of the product are therefore assumed by the user. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.