SAFETY DATA SHEET

Conforms to regulation (EC) no. EU 453/2010

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name: TE Buffer 100X **Product Number:** EC-862

1.2 Relevant Identified Uses of the Substance/Mixture and Uses Advised Against

Investigational research by professional users

1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer
National Diagnostics
305 Patton Drive
Atlanta, GA 30036
(404) 699-2121
(800) 526-3867
info@nationaldiagnostics.com

1.4 Emergency Telephone Number

ChemTel Inc.
Contract number MIS8894340
1-800 255-3924 (United States, Canada, Puerto Rico & US Virgin Islands)
01-800-099-0731 (Mexico)
400-120-0751 (China)
000-800-100-4086 (India)
1-300-954-583 (Australia)
0-800-591-6042 (Brazil)
+1-813-255-3924 (All other regions)

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

Classification according to Regulation (EC) No. 1272/2008 [EU-GHS/CLP]
H315 - Skin Corrosion/Irritation (Category 2)
H319 - Serious Eye Damage/Eye Irritation (Category 2A)
H335 - Specific Target Organ Toxicity, Single Exposure (Category 3)

2.2 Label Elements

GHS LABEL ELEMENTS AND CLASSIFICATION

GHS Label Elements

WARNING
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
P260 - Do not breathe dust/fumes/gas/mist/vapors/spray.
P264 - Wash skin thoroughly after handling.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P308+P313 - IF exposed or concerned: Call a POISON CENTER or doctor/physician.

2.3 Other Hazards

None found.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Chemical Names/Description
Solution of tris base and EDTA.

Component List

Component	% Comp.	CAS #	EC #	1278/2008 Classification
Ethylenediaminetetraacetic acid, disodium salt dihydrate	4.7	6381-92-6	205-358-3	H332

Tris Hydrochloride	15.3	1185-53-1	214-684-5	H315, H319, H335

SECTION 4 - FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation

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

Ingestion

If swallowed, wash out mouth with water provided person is conscious. 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.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Inhalation

Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Symptoms may include coughing and shortness of breath.

Tris Hydrochloride:
Symptoms may include coughing and shortness of breath.

Ingestion

Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Symptoms may include irritation and reddening to the mucous membranes of the mouth, esophagus, and gastrointestinal tract.

Tris Hydrochloride:
Symptoms may include irritation and reddening to the mucous membranes of the mouth, esophagus, and gastrointestinal tract.

Skin

Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Symptoms may include irritation with redness and pain.

Tris Hydrochloride:
Symptoms may include irritation with redness and pain.

Eyes

Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Symptoms may include irritation, redness, pain, and corneal damage.

Tris Hydrochloride:
Symptoms may include irritation, redness, pain, and corneal damage.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Unknown/not applicable

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Water spray, dry chemical, alcohol-resistant foam, or carbon dioxide.

5.2 Special Hazards Arising from the Substance/Mixture

Hazardous Combustion Products

N.A.

Hazardous Decomposition Products

Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization

Will not occur under normal conditions of use (See Sections 10.4 & 10.5).

5.3 Advice for Firefighters

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.

5.4 Further Information

No data available.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

Wear appropriate protective equipment as specified in Section 8.

6.2 Environmental Precautions

Prevent discharge into the environment. Dike spills and stop leakage where practical. Do not allow material to enter drains.

6.3 Methods and Materials for Containment and Cleaning Up

Use a vacuum cleaner equipped with charcoal exhaust scrubber or hose from mechanical exhaust ventilation system to vacuum spills. If this is not possible, sweep up spills and place in a covered waste disposal container. Flush area with water.

6.4 References to Other Sections

For disposal information, see Section 13. For protective clothing and equipment, see Section 8.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for Safe Handling

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

7.2 Conditions for Safe Storage (including any incompatibles)

Keep in a tightly closed container, stored in a cooled, dry, ventilated area. Protect from physical damage. Isolate from incompatible materials (section 10).

Incompatibles

Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Strong oxidizing agents, strong bases, aluminum, copper, copper alloys, nickel.

Tris Hydrochloride:
Bases, oxidizing agents, acids, aldehydes, copper, brass, and aluminum.

7.3 Specific End Uses

Investigational research by professional users

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PRECAUTIONS

8.1 Control Parameters

Component: Ethylenediaminetetraacetic acid, disodium salt dihydrate
ACGIH Threshold Limit Value (TLV): None Established
OSHA Permissable Exposure Limit (PEL): None Established

Component: Tris Hydrochloride
ACGIH Threshold Limit Value (TLV): None established
OSHA Permissable Exposure Limit (PEL): None established

8.2 Exposure Controls

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

Safety glasses.

Skin Protection

Wear protective gloves and clean body covering clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical & Chemical Properties

a. Appearance	Colorless liquid	**b. Odor**	Odorless
c. Odor Threshold	N.A.	**d. pH**	9
e. Melting/Freezing Point (^{o}C)	~6	**f. Boiling point (^{o}C)**	as water
g. Flash Point (^{o}C)	N.A.	**h. Evaporation Rate**	water
i. Flammability	N.A.	**j. Upper/Lower Flammability or Explosive Limits**	N.A.

k. Vapor Pressure	water	**l. Vapor Density (Air = 1)**	Air
m. Relative Density	1.12	**n. Water Solubility**	miscible
o. Partition Coefficient n-octanol/water	Mixture	**p. Autoignition Temperature (^{o}C)**	N.A.
q. Decomposition Temperature (^{o}C)	N.A.	**r. Viscosity**	No data available.
s. Explosive Properties	N.A.	**t. Oxidizing Properties**	Not an oxidizer

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity
Not reactive under recommended conditions of use and storage.

10.2 Chemical Stability
Stable at room temperature in closed containers under normal storage and handling conditions. Decarboxylates above 150C.

10.3 Possibility of Hazardous Reactions
Will not occur under normal conditions of use (See Sections 10.4 & 10.5).

10.4 Conditions to Avoid
Incompatible materials, dust generation, excess heat.

10.5 Incompatible Materials
Ethylenediaminetetraacetic acid, disodium salt dihydrate:
Strong oxidizing agents, strong bases, aluminum, copper, copper alloys, nickel.

Tris Hydrochloride:
Bases, oxidizing agents, acids, aldehydes, copper, brass, and aluminum.

10.6 Hazardous Decomposition Products
Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Product LD50 Values
Oral Rat LD50 (mg/kg)
12760

Dermal Rabbit LD50 (mg/kg)
N.D.

Component Cancer List Status

	NTP Carcinogen		
	Known	**Anticipated**	**IARC Category**
Ethylenediaminetetraacetic acid, disodium salt dihydrate	No	No	None
Tris Hydrochloride	No	No	None

Potential Health Effects
Inhalation
Ethylenediaminetetraacetic acid, disodium salt dihydrate
Causes irritation of the mucous membrane and upper respiratory tract.

Tris Hydrochloride
May cause respiratory tract irritation. The toxigological properties of this substance have not been fully investigated.

Ingestion
Ethylenediaminetetraacetic acid, disodium salt dihydrate
May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Exposure may cause kidney injury, muscle cramps, bone-marrow depression, and a generalized allergic reaction.

Tris Hydrochloride
May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. The toxicological properties of this substance have not been fully investigated.

Skin
Ethylenediaminetetraacetic acid, disodium salt dihydrate
Causes skin irritation. Causes redness and pain.

Tris Hydrochloride

Causes skin irritation. Causes redness and pain.

Eyes

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Causes eye irritation. Causes redness and pain.

Tris Hydrochloride
Causes eye irritation. Causes redness and pain.

Carcinogenicity

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Not listed by NTP or IARC as a known or anticipated carcinogen.

Tris Hydrochloride
Not listed by OSHA, ACGIH, NIOSH, NTP or IARC as a known or anticipated carcinogen.

Mutagenicity

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Cytogenetic Analysis: intraperitoneal - mouse 50mmol/L. DNA Inhibition: hamster fibroblast 500ug/L, rabbit kidney 250 umol/L.

Tris Hydrochloride
No information available.

Reproductive Toxicity

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Fertility: Post-implantation mortality, oral - rat TDLo = 7632 mg/kg.

Tris Hydrochloride
No information available.

Teratogenic Effects

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Embryo or Fetus: Stunted fetus, oral - rat TDLo = 7632 mg/kg. Specific developmental abnormalities: cardiovascular, craniofacial, musculoskeletal, respiratory, and urogenital, oral - rat TDLo = 7632 mg/kg.

Tris Hydrochloride
No information available.

Routes of Entry

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Inhalation, ingestion or skin contact.

Tris Hydrochloride
Inhalation, ingestion or skin contact.

Target Organ Statement

Ethylenediaminetetraacetic acid, disodium salt dihydrate
No information available

Tris Hydrochloride
No information available

SECTION 12 - ECOLOGICAL INFOMATION

12.1 Toxicity

COMPONENT: Ethylenediaminetetraacetic acid, disodium salt dihydrate

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	LC50 (96hr, Lepomis macrochirus):41mg/L	EC50 (485hr daphnia) 140mg/L	EC 50 (72hrs)>100mg/L	EC50>500mg/L

	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity (ppm unless otherwise noted)	No data	No data	LOEC (Nicotiana tabacum) 420mg/L	No data

COMPONENT: Tris Hydrochloride

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	No data	No data	No data	No data

	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity	No data	No data	No data	No data

(ppm unless otherwise noted)

12.2 Persistence and Degradability

Ethylenediaminetetraacetic acid, disodium salt dihydrate
Biodegradable (55% degradation in 20 days)

Tris Hydrochloride
No data

12.3 Bioaccumulative Potential

Ethylenediaminetetraacetic acid, disodium salt dihydrate
BCF 1.1-1.8

Tris Hydrochloride
No data

12.4 Mobility in Soil

Ethylenediaminetetraacetic acid, disodium salt dihydrate
No data

Tris Hydrochloride
No data

12.5 Results of PBT and vPvB Assessment

Ethylenediaminetetraacetic acid, disodium salt dihydrate
No data

Tris Hydrochloride
No data

12.6 Other Adverse Effects

Ethylenediaminetetraacetic acid, disodium salt dihydrate
None

Tris Hydrochloride
None

SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Offer surplus or non-recyclable product to licensed disposal company. Disposal is subject to user compliance with applicable law and product characteristics at time of disposal. Dispose of packaging as product.

SECTION 14 - TRANSPORT INFORMATION

	ADR/RID	IATA	IMO	DOT
14.1 UN Number	N.A.	N.A.	N.A.	N.A.
14.2 Shipping Name	Not Regulated.	Not Regulated.	Not Regulated.	Not Regulated.
14.3 Hazard Class	N.A.	N.A.	N.A.	N.A.
14.4 Packing Group	N.A.	N.A.	N.A.	N.A.
14.5 Environmental Hazards	N.A.	N.A.	N.A.	N.A.
14.6 Special Precautions	N.A.	N.A.	N.A.	N.A.

SECTION 15 - REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance/Mixture

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
Ethylenediaminetetraacetic acid, disodium salt dihydrate	No	No	No	Yes	No
Tris Hydrochloride	No	No	No	Yes	No

Europe

EEC Regulatory
All intentional ingredients are listed on the European EINECS Inventory.

SECTION 16 - OTHER INFORMATION

Revisional Updates

4/26/2019 - Updated Section 1.4
5/29/2015 - Updated Sections 2.1 and 3.2
10/25/2013 - Released Version 1.0

NFPA Codes

Health 1 **Flammability** 0 **Reactivity** 0

Dangers

Ethylenediaminetetraacetic acid, disodium salt dihydrate

H332 - Harmful if inhaled.

Tris Hydrochloride

H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.