

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: TBST 10X

Product Number: EC-882

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

Chemtrec

1-800 424-9300 (U.S. & Canada)
01-703-527-3887 (outside U.S. & Canada)

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)

H320 - Serious Eye Damage/Eye Irritation (Category 2B)

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.

H320 - Causes eye irritation.

H335 - May cause respiratory irritation.

P264 - Wash skin thoroughly after handling.

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

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

P332+P313 - IF SKIN irritation occurs: Get medical advice/attention.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses if present and easy to do. Continue rinsing.

P304+P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

2.3 Other Hazards

None found.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Chemical Names/Description

Aqueous buffer

Component List

Component	% Comp.	CAS #	EC #	1278/2008 Classification
Tris-Base	3	77-86-1	201-064-4	H315, H319, H335
Potassium Chloride	< 1	7447-40-7	231-211-8	N.A.
Polysorbate 20	< 1	9005-64-5	500-018-3	N.A.
Water	89	7732-18-5	231-791-2	N.A.
Sodium Chloride	8	7647-14-5	231-598-3	N.A.

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

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.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Inhalation

Tris-Base:

Coughing, shortness of breath.

Potassium Chloride:

Inhalations of high concentrations of dust may cause nasal or lung irritation.

Polysorbate 20:

Not expected to be a health hazard by inhalation.

Water:

No information found.

Sodium Chloride:

No information found.

Ingestion

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.

Potassium Chloride:

Large quantities can produce gastrointestinal irritation and vomiting.

Polysorbate 20:

Abdominal spasms, diarrhea.

Water:

No information found.

Sodium Chloride:

No information found.

Skin

Tris-Base:

Redness, itching, and pain.

Potassium Chloride:

May cause skin irritation.

Polysorbate 20:

Redness, swelling.

Water:

No information found.

Sodium Chloride:

No information found.

Eyes

Tris-Base:

Redness, itching, and pain.

Potassium Chloride:

Causes eye irritation. May cause chemical conjunctivitis.

Polysorbate 20:

Pain, redness.

Water:

No information found.

Sodium Chloride:

No information found.

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**

Highly toxic gases may be involved in fires of this product.

Hazardous Decomposition Products

Oxides of the contained metal and halogen, possibly also free, or ionic halogen

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 absorbent material to collect and contain for salvage or disposal.

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.

Incompatibles**Tris-Base:**

No incompatibility data found.

Potassium Chloride:

Bromine trifluoride; potassium permanganate plus sulfuric acid.

Polysorbate 20:

Strong oxidizers, acids.

Water:
No incompatibility data found.

Sodium Chloride:
No incompatibility data found.

7.3 Specific End Uses

Investigational research by professional users

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PRECAUTIONS

8.1 Control Parameters

Component: Tris-Base

ACGIH Threshold Limit Value (TLV): none established
OSHA Permissible Exposure Limit (PEL): none established

Component: Potassium Chloride

ACGIH Threshold Limit Value (TLV): 10 mg/m³
OSHA Permissible Exposure Limit (PEL): 15 mg/m³

Component: Polysorbate 20

ACGIH Threshold Limit Value (TLV): none established
OSHA Permissible Exposure Limit (PEL): None established

Component: Water

ACGIH Threshold Limit Value (TLV): None established
OSHA Permissible Exposure Limit (PEL): None established

Component: Sodium Chloride

ACGIH Threshold Limit Value (TLV): none established
OSHA Permissible 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

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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical & Chemical Properties

a. Appearance	Clear, colorless solution	b. Odor	None
c. Odor Threshold	N.A.	d. pH	7
e. Melting/Freezing Point (°C)	0	f. Boiling point (°C)	104
g. Flash Point (°C)	N.A.	h. Evaporation Rate	N.A.
i. Flammability	N.A.	j. Upper/Lower Flammability or Explosive Limits	N.A.
k. Vapor Pressure	N.A.	l. Vapor Density (Air = 1)	N.A.
m. Relative Density	1.05	n. Water Solubility	Miscible
o. Partition Coefficient n-octanol/water	Mixture	p. Autoignition Temperature (°C)	N.A.
q. Decomposition Temperature (°C)	N.A.	r. Viscosity	No data available.
s. Explosive Properties	N.A.	t. Oxidizing Properties	N.A.

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity

No Data

10.2 Chemical Stability

Stable under ordinary conditions of use and storage.

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

No information found.

10.5 Incompatible Materials

Tris-Base:

No incompatibility data found.

Potassium Chloride:

Bromine trifluoride; potassium permanganate plus sulfuric acid.

Polysorbate 20:

Strong oxidizers, acids.

Water:

No incompatibility data found.

Sodium Chloride:

No incompatibility data found.

10.6 Hazardous Decomposition Products

Oxides of the contained metal and halogen, possibly also free, or ionic halogen

SECTION 11 - TOXICOLOGICAL INFORMATION

Product LD50 Values

Oral Rat LD50 (mg/kg)

260000

Dermal Rabbit LD50 (mg/kg)

Component Cancer List Status

	NTP Carcinogen		IARC Category
	Known	Anticipated	
Tris-Base	No	No	None
Potassium Chloride	No	No	None
Polysorbate 20	No	No	none
Water	No	No	None
Sodium Chloride	No	No	None

Potential Health Effects

Inhalation

Tris-Base

Causes irritation to the respiratory tract.

Potassium Chloride

May cause respiratory tract irritation. Can produce delayed pulmonary edema.

Polysorbate 20

Not expected to be a health hazard by inhalation.

Water

No information found.

Sodium Chloride

May cause respiratory tract irritation.

Ingestion

Tris-Base

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

Potassium Chloride

May produce weakness and circulatory problems. May affect heart. In severe cases, ingestion may be fatal.

Polysorbate 20

Large doses may produce abdominal spasms, diarrhea.

Water

No information found.

Sodium Chloride

Ingestion of large amounts may cause gastrointestinal irritation. Ingestion of large amounts may cause nausea and vomiting, rigidity or convulsions. Continued exposure can produce a coma, dehydration and internal organ congestion.

Skin**Tris-Base**

Causes irritation to the skin.

Potassium Chloride

Contact may cause irritation or rash, particularly with moist skin.

Polysorbate 20

May cause irritation or sensitization in sensitive individuals.

Water

No information found.

Sodium Chloride

May cause skin irritation.

Eyes**Tris-Base**

Causes irritation to the eyes.

Potassium Chloride

Potassium chloride is moderate eye irritant. Redness, tearing, possible abrasion can occur.

Polysorbate 20

May cause irritation.

Water

No information found.

Sodium Chloride

May cause eye irritation.

Carcinogenicity**Tris-Base**

Not listed as a carcinogen by NTP or IARC.

Potassium Chloride

Not listed by ACGIH, IARC, NIOSH, NTP, OR OSHA.

Polysorbate 20

Not listed as a known or anticipated carcinogen by NTP or IARC.

Water

No information available.

Sodium Chloride

Not listed by ACGIH, IARC, NIOSH, NTP or OSHA.

Mutagenicity**Tris-Base**

No information found.

Potassium Chloride

Unscheduled DNA Synthesis: Oral, rat = 1500 ug/kg.; Mutation in Microorganisms = Mouse, Lymphocyte = 2048 mg/L.; DNA Damage = Hamster, Ovary = 260 mmol/L.; Cytogenetic Analysis: Hamster, Lung = 12 gm/L

Polysorbate 20

No information found.

Water

No information available.

Sodium Chloride

See actual entry in RTECS for complete information.

Reproductive Toxicity**Tris-Base**

No information found.

Potassium Chloride

No information available.

Polysorbate 20

No information found.

Water

No information available.

Sodium Chloride

No data available.

Teratogenic Effects**Tris-Base**

No information found.

Potassium Chloride

No information available.

Polysorbate 20

No information found.

Water

No information available.

Sodium Chloride

No information found.

Routes of Entry**Tris-Base**

Ingestion.

Potassium Chloride

Ingestion, inhalation, skin and eye contact.

Polysorbate 20

No information found.

Water

No information available

Sodium Chloride

No information found.

Target Organ Statement**Tris-Base**

No information available.

Potassium Chloride**Polysorbate 20**

No information found.

Water

No information available

Sodium Chloride

No information found.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

COMPONENT: Tris-Base

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	LC50 460mg/l (Golden ide)	EC50: 59.8 mg/L (Daphnia)	EC50: 473mg/l @ 48 hrs	CE50>1000mg/L (3hrs)
	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity (ppm unless otherwise noted)	No data	No data	No data	No data

COMPONENT: Potassium Chloride

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	LC50 (96hr, Fathead minnow) 880mg/L	EC50 (48hr, Daphnia) 440-880 mg/L	EC50 (72hrs) >100mg/L	EC50 (3hr) >1000mg/L
	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity (ppm unless otherwise noted)	No data	No data	No data	No data

COMPONENT: Polysorbate 20

	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 (ppm unless otherwise noted)	No data	No data	No data	No data

COMPONENT: Water

	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 (ppm unless otherwise noted)	No data	No data	No data	No data

COMPONENT: Sodium Chloride

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	LC50 (96hrs, bluegill) 5480 mg/L	LC50 (48 hr, daphnia) 874mg/L	LC50 (120hrs) 2430 mg/L	No data
	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity (ppm unless otherwise noted)	LD50 (house sparrow) 3500mg/kg	No data	IC50 (7 days) 500-1950mg/kg soil	No data

12.2 Persistence and Degradability

Tris-Base

Readily Biodegradable (>97% degradation at 28 days)

Potassium Chloride

No data

Polysorbate 20

No data

Water

No data

Sodium Chloride

No data

12.3 Bioaccumulative Potential

Tris-Base

No data

Potassium Chloride

No data

Polysorbate 20

No data

Water

No data

Sodium Chloride

No data

12.4 Mobility in Soil**Tris-Base**

Log Koc 1.57-1.85

Potassium Chloride

No data

Polysorbate 20

No data

Water

No data

Sodium Chloride

No data

12.5 Results of PBT and vPvB Assessment**Tris-Base**

Not a PBT or vPvB

Potassium Chloride

No data

Polysorbate 20

No data

Water

No data

Sodium Chloride

Not PBT or vPvB

12.6 Other Adverse Effects**Tris-Base**

None

Potassium Chloride

None

Polysorbate 20

None

Water

None

Sodium Chloride

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
Tris-Base	No	No	No	Yes	No
Potassium Chloride	No	No	No	Yes	No
Polysorbate 20	No	No	No	Yes	No
Water	No	No	No	No	No
Sodium Chloride	No	No	No	Yes	No

Europe

EEC Regulatory

All intentional ingredients are listed on the European EINECS Inventory.

SECTION 16 - OTHER INFORMATION

Revisional Updates

5/29/2015 - Updated Sections 2.1 and 3.2

6/27/2013- Released Version 1.0

NFPA Codes

Health 1 Flammability 0 Reactivity 0

Dangers

Tris-Base

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

H335 - May cause respiratory irritation.

Potassium Chloride

None

Polysorbate 20

None

Water

None

Sodium Chloride

None

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