10x Running Buffer Tris-Borate-EDTA (TBE)

Cat. No.	Product	Content
ID1531	10x Running Buffer Tris-Borate-EDTA (TBE)	500 mL

1. Identity of the substance and the manufacturer

1.1. Name of the substances or preparations
10x Running Buffer Tris-Borate-EDTA (TBE)

1.2. Recommended use of the chemical and restrictions on use
Laboratory research use only.

1.3. Name and address of the manufacturer
NIPPON Genetics EUROPE GmbH
Mariaweilerstraße 28 a
52349 Düren
Germany

1.4. Emergency telephone contact
+49 2421/554960

2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1. GHS-classification

2.1.1.1. Signal word
Caution!

2.1.1.2. Appearance
Transparent liquid.

2.1.1.3. H statements

- May cause kidney damage.
- May cause central nervous system effects.
- May cause reproductive effects based upon animal studies.
- May cause eye and skin irritation.
- May cause respiratory and digestive tract irritation.

2.2. Principle routes of exposure potential health effects

Eyes	May cause eye irritation.
Skin	May cause skin irritation.
Ingestion	May be harmful by inhalation.
	May cause irritation of digestive tract.
	May cause kidney damage.
	May cause central nervous system effects.
Inhalation	May cause respiratory tract irritation.
Chronic	May cause borism characterized by dry skin, skin eruptions and gastric disturbances.

2.3. Specific effects

2.3.1. Carcinogenic effects

None.

2.3.2. Mutagenic effects

None.

2.3.3. Reproductive toxicity

None.

2.3.4. Sensitization

None.

2.3.5. Target organ effects

No known effects under normal use conditions.

3. Composition/information about the components

3.1. Substances

Chemical name	CAS No.	EINECS-No	Weight %
Boric acid	10043-35-3	233-139-2	32.5
Tris	77-86-1	201-064-4	64
EDTA	60-00-4	200-449-4	3.5
Water	7732-18-5	231-791-2	up to 100

The product contains no substances which at their given concentration, are considered to be hazardous to health.

4. First-aid measures

4.1. Description of necessary first-aid measures

4.1.1. General information

If complains persist consult a physician. Remove contaminated cloths and shoes, thoroughly clean before re-use. If complains and symptoms occur seek medical advice.

4.1.2. Inhalation

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

4.1.3. Skin contact

Rinse cautiously with water for several minutes. Get medical aid if irritation develops or persist.

4.1.4. Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15minutes. If symptoms persist, call a physician.

4.1.5. Ingestion
If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

4.1.6. Notes to physician
Treat symptomatically.

5. In case of fire

5.1. Suitable extinguishing agents

The product is not combustible, adapt the measures to the environment: water spray, carbon dioxide, extinguishing foam and dry extinguishing agent.

5.2. Specific hazards from chemical compounds

Not known.

5.3. Protective equipment and precautions for fire fighters

Standard procedure for chemical fires.

6. In case of spillage

6.1. Personal precautions, protective equipment and emergency procedures
- Avoid the contact with skin, eyes and cloth, wear suitable protection equipment.

6.2. Environmental precautions
- No special environmental precautions required. See Section 12 for more information.

6.3. Containment and cleanup

- Sweep up, place in a bag and hold for waste disposal.
- Avoid raising dust.
- Ventilate area and wash spill site after material pickup is complete.

7. Handling and storage

7.1. Safe handling

Always wear recommended personal protective equipment. No special handling advices are necessary.

7.2. Safe storage

Keep in a dry, cool and well-ventilated place. Store in tightly closed container.

8. Exposure controls/personal protection

8.1. Engineering measures

Ensure adequate ventilation, especially in confined areas.

8.2. Exposure controls

8.2.1. Personal protection

8.2.1.1. Hand protection

- Impervious gloves.

8.2.1.2. Eye protection

- Eye protection goggles with side protection (EN 166).

8.2.1.3. Skin and body protection

- Lightweight protective clothing.

8.2.1.4. General protection and hygiene measure

- Do not eat, drink or smoke during working hours.
- Keep away from food and drink.
- Avoid contact with eyes and skin.
- Remove contaminated and soaked clothing immediately.
- Wash hands before breaks and after work.

8.2.2. Limitation of the environmental exposure

No special environmental precautions required.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

9.1.1. Appearance

Physical status: liquid
Color: transparent
Odour: odourless
pH: 8-9

9.1.2. Fundamental data relevant for security

Parameter	Value
Boiling point / boiling range °C	No data available
Melting point / melting range °C	No data available
Flash point °C	No data available
Autoignition temperature °C	No data available
Oxidizing properties	No data available
Water solubility	No data available

10. Stability and reactivity

10.1. Stability

Stable under the intended use and storage conditions. Decarboxylates above 150°C.

10.2. Conditions/materials to avoid

- EDTA is incompatible with: strong oxidizing agents, strong bases, copper, copper alloys, aluminum.
- Tris is incompatible with strong oxidizing agents and strong acids.
- Boric acid is incompatible with acetic anhydride and potassium. Forms borate salts with basic components.

10.3. Harmful material produce by degradation

Carbon monoxide, carbon dioxide, nitric oxide (NO) and ammonia (NH3) fumes.

10.4. Product polymerization

Hazardous polymerization does not occur.

11. Toxicological information

11.1. Information on toxicological effects

11.1.1. RTECS#

CAS# 60-00-4: AH4025000
CAS# 77-86-1: TY2900000
CAS# 10043-35-3: ED4550000

11.1.2. LD50/LC50

CAS# 60-00-4: Oral, mouse: LD50 = 30 mg/kg.
CAS# 77-86-1: Oral, rat: LD50 = 5900 mg/kg.
CAS# 10043-35-3: Oral, mouse: LD50 = 3450 mg/kg; Oral, rat: LD50 = 2660 mg/kg.

11.1.3. Carcinogenicity

Ethylenediamine tetraacetic acid - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Tris (hydroxymethyl) aminomethane - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Boric acid - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

11.1.3. Epidemiology
No information available.

11.1.4. Teratogenicity
EDTA: Embryo or Fetus, Stunted fetus, oral-rat TDLo=7632mg/kg. Specific Developmental Abnormalities, Cardiovascular, Craniofacial, Musculoskeletal, Respiratory, and Urogenital, oral-rat TDLo=7632mg/kg.

Boric Acid: Decreased fetal weight, oral rat 13.3 mg/kg/1D.

11.1.5. Reproductive effects
EDTA: Fertility, Post-implantation mortality, oral-rat TDLo=7632mg/kg.

Boric Acid: Maternal effects on ovaries and fallopian tubes, oral rat TDLo=45 g/kg 90 days. Paternal effects on spermatogenesis, oral rat TDLo=52 mg/kg. effects on testes, sperm duct or epididymis, oral rat TDLo=45 g/kg 90 days.

11.1.6. Neurotoxicity
No information available.

11.1.7. Mutagenicity
EDTA: Cytogenetic Analysis, intraperitoneal-mouse 50mmol/L.

11.1.8. DNA inhibition
Hamster fibroblast 500ug/L, rabbit kidney 250umol/L.

11.1.9. Other Studies
None.

12. Ecological information

12.1. Ecotoxicity
The environmental impact of this product has not been fully investigated.

12.2. Mobility
No information available.

12.3. Biodegradation
Inherently biodegradable.

12.4. Bioaccumulation
Material does not bioaccumulate.

13. Disposal considerations
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport information

14.1. IATA

Proper shipping name	No dangerous good in sense of these transport regulations.
Hazard class	This substance is considered to be non-hazardous for transport.
Subsidiary class	None
Packing group	None
UN-No	None

15. Regulatory information

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

15.1.1. US Federal Regulations

15.1.1.1. TSCA
CAS# 60-00-4 is listed on the TSCA inventory.
CAS# 77-86-1 is listed on the TSCA inventory.
CAS# 10043-35-3 is listed on the TSCA inventory.

15.1.1.2. Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

15.1.1.3. Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

15.1.1.4. Section 12b

None of the chemicals are listed under TSCA Section 12b.

15.1.1.5. TSCA Significant New Use Rule

None of the chemicals are listed under TSCA Section 12b.

15.1.1.6. SARA

Section 302 (RQ)

CAS# 60-00-4: final RQ = 5000 pounds (2270 kg)

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 77-86-1: acute.
CAS # 10043-35-3: acute.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act

CAS# 60-00-4 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Ethylenediamine tetraacetic ac can be found on the following state right to know lists: California, New Jersey, Pennsylvania and Massachusetts. Tris (hydroxymethyl) aminomethane is not present on state lists from CA, PA, MN, MA, FL, or NJ. Boric acid is not present on state lists from CA, PA, MN, MA, FL, or NJ. California No Significant Risk Level: None of the chemicals in this product are listed.

15.2.1. European/International Regulations

15.2.1.1. European Labeling in Accordance with EC Directives

Hazard Symbols	Not available.
Risk Phrases	---
Safety Phrases	---

15.2.1.2. WGK (Water Danger/Protection)

CAS# 60-00-4: 2 CAS# 77-86-1: 1
CAS# 10043-35-3: 1

15.3.1. United Kingdom Occupational Exposure Limits

15.4.1. Canada

CAS# 60-00-4 is listed on Canada's DSL/NDSL List.
CAS# 77-86-1 is listed on Canada's DSL/NDSL List.
CAS# 10043-35-3 is listed on Canada's DSL/NDSL List. WHMIS: Not available.
CAS# 60-00-4 is not listed on Canada's Ingredient Disclosure List.
CAS# 77-86-1 is not listed on Canada's Ingredient Disclosure List.
CAS# 10043-35-3 is not listed on Canada's Ingredient Disclosure List. Exposure Limits
CAS# 10043-35-3: OEL-RUSSIA: STEL 10 mg/m3

16. Other information

This information is based on our present knowledge. Its objective is to describe the product from the point of view of safety, and no warranty is made other than its characteristics. This information does not absolve the user in any circumstances from observing other Legislative, Regulatory and Administrative requirements applying to the product, and to safety, hygiene and the well-being of the people in the workplace.

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