



MATERIAL SAFETY DATA SHEET

Company	ELPIS-Biotech. Inc.
Address	123-12 Jeonglim-dong, Seo-gu, Daejeon, Korea
Emergency Telephone NO	+82-42-581-8448
Fax	+82-42-581-8449
e-mail address	elpis@elpisbio.com

SECTION 1. CHEMICAL INFORMATION

Product name	1.5M Tris-HCl (pH8.8)
Cat. No.	EBA-1045

Volume of product package: 500ml.

Product Use : Laboratory Reagent. For R&D use only. Not for drug, household or other uses.

Manufacturer/ Supplier information

Supply company : ELPIS-Biotech. Inc.

Address : 123-12 Jeonglim-dong, Seo-gu, Daejeon, Korea

Information service or emergency call : +82-42-581-8448 (042-581-8448, Korea)

Department in charge : Research Department

SECTION 2. HAZARDOUS IDENTIFICATION

Potential Acute Health Effects:

Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, . Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs. The substance may be toxic to skin. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Buffer's Components in Water:

Reagent	CAS#	Concentration, %
Tris-HCl	77-86-1	≤ 18.1

SECTION 4. FIRST AID MEASURES

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available

SECTION 5. FIRE FIGHTING MEASURES

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Poisonous liquid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

SECTION 7. HANDLING AND STORAGE

Precautions:

Keep locked up.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.

Storage:

Keep container tightly closed. This solution is near saturation. To ensure homogeneity, this solution must be stored and used at room temperature.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION □

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection: Safety glasses. Lab coat.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance:	Liquid.
Odor:	Not available.
Taste:	Not available.
Molecular Weight:	Not applicable.
Color:	Not available.
pH (1% soln/water):	8.8
Boiling Point:	The lowest known value is 100°C (212°F) (Water).
Melting Point:	Not available.
Critical Temperature:	Not available.
Specific Gravity:	The only known value is 1 (Water = 1) (Water).
Vapor Pressure:	The highest known value is 2.3 kPa (@ 20°C) (Water).
Vapor Density:	The highest known value is 0.62 (Air = 1) (Water).
Volatility:	Not available.
Odor Threshold:	Not available.
Water/Oil Dist. Coeff.:	Not available.
Ionicity (in Water):	Not available.
Dispersion Properties:	See solubility in water, methanol, acetone.
Solubility:	Easily soluble in cold water, hot water. Partially soluble in methanol, acetone.

SECTION 10. STABILITY AND REACTIVITY

Stability:	The product is stable.
Instability Temperature:	Not available.
Conditions of Instability:	Incompatible materials
Incompatibility with various substances:	Slightly reactive to reactive with oxidizing agents, reducing agents, metals, acids,alkalis.
Corrosivity:	Non-corrosive in presence of glass.
Special Remarks on Reactivity:	Incompatible with metals such as copper, brass, and aluminum. Incompatible with aldehydes (Tromethamine)
Special Remarks on Corrosivity:	Not available.
Polymerization:	Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals: Acute oral toxicity (LD50): 24380 mg/kg (Rat) (Calculated value for the mixture).

Chronic Effects on Humans: Contains material which may cause damage to the following organs: skin.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Skin: May cause skin irritation Eyes: May cause eye irritation. Inhalation: May cause respiratory tract irritaiton. Ingestion: May cause irritation of the gastrointestinal tract, mouth, esophagous. Symptoms may include nausea, vomiting, diarrhea. May affect behavior.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal:

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

SECTION 14. TRANSPORT INFORMATION

Contact ELPIS Biotech, Inc. Company for Transportation Information.

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

SECTION 15. REGULATORY INFORMATION

Federal and State Regulations: TSCA 8(b) inventory: Water; Tromethamine

Other Regulations: Not available. or of its ingredients

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):

R25- Toxic if swallowed. R36/38- Irritating to eyes and skin. S1/2- Keep locked up and out of the reach of children. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: a

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Not applicable. Lab coat. Not applicable. Safety glasses.

SECTION 16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.

ELPIS Biotech Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.

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