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: Tris-Tricine-SDS PAGE Buffer (10X) **Product Number:** EC-869

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)
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.
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
Aqueous solution of tris base, tricine and sodium dodecyle sulfate

Component List

Component	% Comp.	CAS #	EC #	1278/2008 Classification
Tris-Base	10 - 20	77-86-1	201-064-4	H315, H319, H335
Tricine	10 - 20	5704-04-1	227-193-6	N.A.
SDS	1	151-21-3	205-788-1	H302, 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

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

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.

Tricine:
No information found.

SDS:
Coughing, shortness of breath. May cause allergic reaction in sensitive individuals.

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.

Tricine:
No information found.

SDS:
Nausea and diarrhea.

Skin

Tris-Base:
Redness, itching, and pain.

Tricine:
No information found.

SDS:
Causes dryness and a rash on continued exposure.

Eyes

Tris-Base:
Redness, itching, and pain.

Tricine:
No information found.

SDS:
Causes redness and pain.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Unknown/not applicable

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use media appropriate to the pimary cause of the fire.

5.2 Special Hazards Arising from the Substance/Mixture

Hazardous Combustion Products

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

Hazardous Decomposition Products

Burning may produce carbon monoxide, carbon dioxide and nitrogen oxides.

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
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.

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
Tris-Base:
No incompatibility data found.

Tricine:
Strong oxidizing agents.

SDS:
Strong oxidizers, acids.

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 Permissable Exposure Limit (PEL): none established

Component: Tricine
ACGIH Threshold Limit Value (TLV): none available
OSHA Permissable Exposure Limit (PEL): none available

Component: SDS
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 low. 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 impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical & Chemical Properties

a. Appearance	Clear colorless liquid	**b. Odor**	Odorless
c. Odor Threshold	N.A.	**d. pH**	8.0 - 8.5
e. Melting/Freezing Point (°C)	0	**f. Boiling point (°C)**	105
g. Flash Point (°C)	N.A.	**h. Evaporation Rate**	1.0
i. Flammability	N.A.	**j. Upper/Lower Flammability or Explosive Limits**	N.A.
k. Vapor Pressure	Water	**l. Vapor Density (Air = 1)**	No information found
m. Relative Density	1.05	**n. Water Solubility**	Soluble
o. Partition Coefficient n-octanol/water	Mixture	**p. Autoignition Temperature (°C)**	N.A.
q. Decomposition Temperature (°C)	N.A.	**r. Viscosity**	N.A.
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 under normal temperatures and pressures.

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
Incompatibles

10.5 Incompatible Materials
Tris-Base:
No incompatibility data found.

Tricine:
Strong oxidizing agents.

SDS:
Strong oxidizers, acids.

10.6 Hazardous Decomposition Products
Burning may produce carbon monoxide, carbon dioxide and nitrogen oxides.

SECTION 11 - TOXICOLOGICAL INFORMATION

Product LD50 Values
Oral Rat LD50 (mg/kg)
No Data

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

Component Cancer List Status

	NTP Carcinogen		
	Known	**Anticipated**	**IARC Category**
Tris-Base	No	No	None
Tricine	No	No	None
SDS	No	No	None

Potential Health Effects
Inhalation
Tris-Base
Causes irritation to the respiratory tract.

Tricine
May cause respiratory tract irritation.

SDS
Dust causes irritation to the respiratory tract.

Ingestion

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

Tricine
May be harmful by ingestion.

SDS
Large doses may cause gastrointestinal distress.

Skin

Tris-Base
Causes irritation to the skin.

Tricine
May cause skin irritation.

SDS
Mildly irritating to skin. May cause allergic skin reactions.

Eyes

Tris-Base
Causes irritation to the eyes.

Tricine
May cause eye irritation.

SDS
Causes irritation to the eyes.

Carcinogenicity

Tris-Base
Not listed as a carcinogen by NTP or IARC.

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

SDS
Not listed as a known or suspected carcinogen by NTP or IARC.

Mutagenicity

Tris-Base
No information found.

Tricine
No information found.

SDS
Has caused mutagenic effects on laboratory animals.

Reproductive Toxicity

Tris-Base
No information found.

Tricine
No information found.

SDS
Has caused mutagenic effects on laboratory animals.

Teratogenic Effects

Tris-Base
No information found.

Tricine
No information found.

SDS
No information found.

Routes of Entry

Tris-Base
Ingestion.

Tricine
Inhalation, ingestion, skin absorption.

SDS
No information found.

Target Organ Statement

Tris-Base
No information available.

Tricine
No information found.

SDS
Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

SECTION 12 - ECOLOGICAL INFOMATION

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: Tricine

	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: SDS

	Vertebrates	Invertebrates	Algae	Microorganisms
Aquatic Toxicity (ppm unless otherwise noted)	The 96 hr LC50 of dodecyl sulfate to Fathead minnows was 29 mg/L	LC50 (Ceriodaphnia dubia, 48-hr): 5.55 mg/L	EC50>120mg/L	IC50 (3 hrs): 480 mg/L

	Birds	Arthropods	Plants	Microorganisms
Terrestrial Environment Toxicity (ppm unless otherwise noted)	No data	No data	EC50 (72hr, Cicer arietinum) 361 mg/L	No data

12.2 Persistence and Degradability

Tris-Base
Readily Biodegradable (>97% degradation at 28 days)

Tricine
No data

SDS
Readily biodegradable (>95% degradation in 28 days)

12.3 Bioaccumulative Potential

Tris-Base
No data

Tricine
No data

SDS
No data

12.4 Mobility in Soil

Tris-Base
Log Koc 1.57-1.85

Tricine
No data

SDS
Log Koc 1.545

12.5 Results of PBT and vPvB Assessment

Tris-Base
Not a PBT or vPvB

Tricine
No data

SDS
Not PBT vPvB

12.6 Other Adverse Effects

Tris-Base
None

Tricine
None

SDS
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
Tricine	No	No	No	No	No
SDS	No	No	No	Yes	Yes

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

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

Tricine
None

SDS
H302 - Harmful if swallowed
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.

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.