



Conforms to 93/112/EC and ISO 11014:2009

Responsible Name: Diazyme Administration
Effective: 09/21/10

SECTION 1: PRODUCT and COMPANY IDENTIFICATION

PRODUCT NAME:
5'-Nucleotidase Assay
Reagent 1
Reagent 2

CATALOG #
DZ123A
DZ123A-R1
DZ123A-R2

Supplier: **Diazyme Laboratories**
12889 Gregg Court
Poway, CA 92064, USA
858-455-4768

Manufacturer: **Diazyme Laboratories**
12889 Gregg Court
Poway, CA 92064, USA
858-455-4768

In case of Emergency: Call Diazyme Laboratories (858-455-4768)

Intended Use: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

SECTION 2: HAZARDOUS INGREDIENTS

Product	Ingredient	Amount	CAS #	EINECS #	Symbols
Reagent R1	Bovine Serum Albumin	1.0%	9048-46-8	305-179-1	N/A
	Trizma Base	1.2%	77-86-1	201-064-4	N/A
Reagent R2	Triethanolamine	0.25%	102-71-6	203-049-8	N/A

NOTE: Physical and health hazard information on reagent mixtures has not been determined. Any physical and health information noted is based on 1) evaluation of data for the pure ingredients, and 2) concentration of ingredients as packaged.

To the best of our knowledge, this product contains no hazardous ingredients as defined by OSHA, or WHMIS.

Emergency Overview: The chemical, physical and toxicological properties of this preparation, pertaining directly to occupational exposures, have not been thoroughly characterized.

Section 3: Hazard Identification

BOVINE SERUM ALBUMIN:

EMERGENCY OVERVIEW

Not available

Potential Health Effects

Eye: Dust may cause mechanical irritation.

Skin: May cause skin irritation. Low hazard for usual industrial handling.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation. Expected to be a low ingestion hazard.

Inhalation: May cause respiratory tract irritation. Low hazard for usual industrial handling.

Chronic: No information found.

TRIZMA BASE:

EMERGENCY OVERVIEW

Potential Health Effects

Eye: Causes irritation

Skin: May be harmful if absorbed through skin. Causes skin irritation

Ingestion: May be harmful if swallowed

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation

		Trizma Base
HMIS RATING	HEALTH:	2
	FLAMMABILITY:	0
	PHYSICAL HAZARDS:	0
NFPA RATING	HEALTH:	2
	FLAMMABILITY:	0
	REACTIVITY:	0
HAZARD SYMBOLS:		N/A



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R-Phrase:	None Listed
S-Phrase:	None Listed

TRIETHANOLAMINE:

EMERGENCY OVERVIEW

Hygroscopic (absorbs moisture from the air).

Potential Health Effects

- Eye:** Causes eye irritation.
- Skin:** May cause skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. Causes redness and pain.
- Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
- Inhalation:** May cause respiratory tract irritation. Inhalation of vapors will cause coughing or breathing difficulty.
- Chronic:** Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage.

		Triethanolamine
HMIS RATING	HEALTH:	0
	FLAMMABILITY:	0
	REACTIVITY:	0
NFPA RATING	HEALTH:	0
	FLAMMABILITY:	0
	REACTIVITY:	0
HAZARD SYMBOLS:		N/A
R-Phrase:		None Listed
S-Phrase:		None Listed

SECTION 4: FIRST AID MEASURES

BOVINE SERUM ALBUMIN

- After Inhalation:** Supply fresh air; consult doctor in case of complaints.
- After Skin Contact:** Wash with soap and water and rinse thoroughly. Remove solid clothing.
- After Eye Contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

TRIZMA BASE

- After Inhalation:** If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.
- After Skin Contact:** Wash off with soap and plenty of water. Consult a physician.
- After Eye Contact:** Rinse thoroughly with plenty of water for 15 minutes and consult a physician.
- Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

TRIETHANOLAMINE:

- Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.
- Skin:** In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical aid if symptoms occur. Wash clothing before reuse.
- Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Get medical aid.
- Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.



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SECTION 5: FIRE FIGHTING MEASURES

BOVINE SERUM ALBUMIN:

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol resistant foam.

TRIZMA BASE:

Extinguishing Media: Suitable: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Firefighting: Protective Equipment: Wear self-contained breathing apparatus for fire fighting if necessary.

TRIETHANOLAMINE:

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool.

SECTION 6: ACCIDENTAL RELEASE MEASURES

BOVINE SERUM ALBUMIN:

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container.

TRIZMA BASE:

Personal Precaution(s): Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.
Environmental precautions: Do not let product enter drains.
Clean Up Methods: Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

TRIETHANOLAMINE:

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Do not let this chemical enter the environment.

SECTION 7: HANDLING AND STORAGE

BOVINE SERUM ALBUMIN:

Handling: Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.
Storage: Store in a cool, dry place. Keep from contact with oxidizing materials.

TRIZMA BASE:

Handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
Storage: Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

TRIETHANOLAMINE:

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid breathing vapors from heated material. Avoid contact with eyes, skin, and clothing. Avoid breathing spray or mist. If material is solid, carefully thaw and mix before sampling or using. Do not add nitrites or other nitrosating agents. A nitrosamine, which may cause cancer, may be formed.
Storage: Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture. Do not store in aluminum containers. Store protected from light and air.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

BOVINE SERUM ALBUMIN:

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.



MATERIAL SAFETY DATA SHEET

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Exposure Limits

CAS# 94349-60-7: None Listed

Personal Protective Equipment

Eyes: Wear safety glasses.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.
Respirators: Respiratory protection is not required. Where protection from nuisance levels of dust are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.
Hand: Protective gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

TRIZMA BASE:

Contains no substances with occupational exposure limit values.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand: Handle with gloves.
Eye: Safety glasses with side shields conforming to EN166.
Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work day.

TRIETHANOLAMINE:

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Exposure Limits

CAS# 102-71-6:

Belgium - TWA: 5 mg/m³ VLE
Germany: 5 mg/m³ TWA (inhalable fraction)
Malaysia: 5 mg/m³ TWA
Netherlands: 5 mg/m³ MAC
Spain: 5 mg/m³ VLA-ED

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.



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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOVINE SERUM ALBUMIN:

Physical State: Powder
Color: Slightly yellow - beige
Odor: Weak odor
pH: Not available
Vapor Pressure: Not available
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: Not available
Autoignition Temperature: Not available
Flash Point: Not available
Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available
Decomposition Temperature: Not available
Solubility in water: Soluble, slightly soluble
Specific Gravity/Density: Not available
Molecular Formula: Not available
Molecular Weight: Not available

TRIZMA BASE:

Appearance: Crystalline; colorless/white
pH: 10.5-12
Melting point: 167-172°C (333-342°F)
Boiling point: 219-220°C (426-428°F) at 13 hPa (10 mmHg)
Flash point: N/A
Ignition temperature: N/A
Lower explosion limit: N/A
Upper explosion limit: N/A
Water solubility: N/A

TRIETHANOLAMINE:

Physical State: Solid or liquid
Color: Viscous - colorless to pale yellow
Odor: Ammonia-like - weak odor
pH: 10.5 (15 g/l H₂O)
Vapor Pressure: 3.59E-006 mm Hg @ 25°C
Viscosity: 601 cps @ 25°C
Boiling Point: 335°C
Freezing/Melting Point: 21°C (69.80°F)
Autoignition Temperature: 315°C (599.00°F)
Flash Point: 179°C (354.20 °F)
Explosion Limits: Lower: 1.3
Explosion Limits: Upper: 8.5
Decomposition Temperature:
Solubility in water: Soluble
Specific Gravity/Density: 1.125
Molecular Formula: (HOCH₂CH₂)₃N
Molecular Weight: 149.19

SECTION 10: STABILITY AND REACTIVITY

BOVINE SERUM ALBUMIN:

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, exposure to moist air or water, strong oxidizing agents.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Hazardous decomposition products formed under fire conditions. – Carbon oxides, nitrogen oxides (NOx).
Hazardous Polymerization: Will not occur.



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TRIZMA BASE:

Chemical Stability: Stable under recommended storage conditions
Conditions to avoid: Exposure to moisture.
Materials to avoid: Strong oxidizing agents.
Hazardous decomposition products: Hazardous decomposition products formed under fire conditions. – Carbon oxides, nitrogen oxides (NOx)

TRIETHANOLAMINE:

Chemical Stability: Air sensitive. Moisture sensitive. Light sensitive. Darkens on exposure to light and air. Hygroscopic: absorbs moisture or water from the air.
Conditions to Avoid: Light, moisture, exposure to air, excess heat.
Incompatibilities with Other Materials Strong oxidizing agents, strong acids, copper, copper alloys, zinc.
Hazardous Decomposition Products Nitrogen oxides, carbon monoxide, carbon dioxide.
Hazardous Polymerization Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

BOVINE SERUM ALBUMIN:

RTECS#: CAS# 94349-60-7: None listed
LD50/LC50: RTECS: Not available.
Carcinogenicity: ALBUMINE BOVINE / FRACTION V (PH:7.0) - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

TRIZMA BASE:

Acute toxicity: LD50 Oral - rat - 5,900 mg/kg
Skin corrosion/irritation: N/A
Serious eye damage/eye irritation: N/A
Respiratory or skin sensitization: N/A
Germ cell mutagenicity: N/A

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: N/A
Specific target organ toxicity - single exposure (GHS): Inhalation - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure (GHS): N/A
Aspiration hazard: N/A

ROUTE OF EXPOSURE

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS: TY2900000

TRIETHANOLAMINE:

RTECS#: CAS# 102-71-6: KL9275000
LD50/LC50: RTECS:
CAS# 102-71-6: Draize test, rabbit, eye: 20 mg Severe;
Draize test, rabbit, eye: 10 mg Mild;
Draize test, rabbit, skin: 560 mg/24H Mild;
Oral, mouse: LD50 = 5846 mg/kg;
Oral, rabbit: LD50 = 2200 mg/kg;
Oral, rat: LD50 = 4920 uL/kg;
Skin, rabbit: LD50 = >20 mL/kg;
Skin, rat: LD50 = >16 mL/kg;.

Carcinogenicity: Triethanolamine - IARC: Group 3 (not classifiable)
Other: See actual entry in RTECS for complete information.



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SECTION 12: ECOLOGICAL INFORMATION

BOVINE SERUM ALBUMIN:

No information available.

TRIZMA BASE:

Toxicity: N/A
Persistence and degradability: N/A
Bioaccumulative potential: N/A
Mobility in soil: N/A
PBT and vPvB assessment: N/A
Other adverse effects: N/A

TRIEETHANOLAMINE:

Ecotoxicity: Fish: Fathead Minnow: 5600 mg/L; 96H; LC50
Other: Do not empty into drains.

SECTION 13: DISPOSAL CONSIDERATIONS

BOVINE SERUM ALBUMIN:

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Observe all federal, state, and local environmental regulations in the country of use when disposing of this product.

TRIZMA BASE:

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging: Dispose of as unused product.

TRIEETHANOLAMINE:

Products considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local authority or advice. Empty containers must be decontaminated before returning for recycling. Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14: TRANSPORTATION INFORMATION

Basic Shipping Description: Contact Diazyme Laboratories for shipping information.

BOVINE SERUM ALBUMIN:

	IATA	IMO	RID/ADR
Shipping Name:	Not regulated.	Not regulated.	Not regulated.
Hazard Class:			
UN Number:			
Packing Group:			

TRIZMA BASE:

DOT (US)
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

TRIEETHANOLAMINE:

US DOT
Shipping Name: AMINES, SOLID, CORROSIVE, N.O.S.
Hazard Class: 8
UN Number: UN3259
Packaging Group: III
Canada TDG
Shipping Name: AMINES, SOLID CORROSIVE, N.O.S.(TRIEETHANOLAMINE)
Hazard Class: 8
UN Number: UN3259
Packaging Group: III



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SECTION 15: REGULATORY INFORMATION

BOVINE SERUM ALBUMIN:

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols: Not available
Risk Phrases: Not available
Safety Phrases: Not available
S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)
CAS# 94349-60-7: Not available

Canada

All components of this product are on the Canadian DSL list.

US Federal

TSCA
CAS# 94349-60-7 is listed on the TSCA Inventory.

TRIZMA BASE:

OSHA Hazards

Irritant

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No Components Listed

Pennsylvania Right To Know Components

Tris (hydroxymethyl) aminomethane

CAS-No.

77-86-1

New Jersey Right To Know Components

Tris (hydroxymethyl) aminomethane

CAS-No.

77-86-1

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

TRIETHANOLAMINE:

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols: XI
Risk Phrases:
R 36 Irritating to eyes
Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S 39 Wear eye/face protection

WGK (Water Danger/Protection)
CAS# 102-71-6:1

Canada

CAS# 102-71-6 is listed on Canada's DSL List
Canadian WHMIS Classifications: D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations

CAS# 102-71-6 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA



MATERIAL SAFETY DATA SHEET

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CAS# 102-71-6 is listed on the TSCA Inventory.

SECTION 16: OTHER INFORMATION

PREPARED BY: Diazyme Administration

PHONE NO: 858-455-4768

DATE PREPARED: 10-September-2010

The information provided on this Material Safety Data Sheet is provided in the interest of promoting safe handling of the material. While this information is believed to be correct Diazyme makes no warranty in respect to any of the information disclosed. Observe all federal, provincial, state and local laws concerning health and pollution.