

Conforms to 93/112/EC and ISO 11014-1

Responsible Name: Diazyme Administration  
Effective 08/05/08**SECTION 1: PRODUCT and COMPANY IDENTIFICATION**

<b>PRODUCT NAME:</b>	<b>CATALOG #</b>
<b>Adenosine Deaminase Colorimetric Assay</b>	<b>DZ117A</b>
<b>Reagent R1</b>	<b>DZ117A-R1</b>
<b>Reagent R2</b>	<b>DZ117A-R2</b>
<b>Calibrator</b>	<b>DZ117A-S1</b>
<b>Control</b>	<b>DZ117A-C1</b>

Supplier: **Diazyme Laboratories**  
12889 Gregg Court  
Poway, CA 92064, USA  
858-455-4754Manufacturer: **Diazyme Laboratories**  
12889 Gregg Court  
Poway, CA 92064, USA  
858-455-4754Authorized Representative: **MDSS GmbH**  
Schiffgraben 41  
30175 Hannover  
Germany

In case of Emergency: Call Diazyme Laboratories (858-455-4754)

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	R-Phrase	S-Phrase
Reagent R1	D(-)-Mannitol	1%	69-65-8	200-711-8	None Listed	None Listed	None Listed
Reagent R2	Dimethyl Sulfoxide	5%	67-68-5	200-664-3	None Listed	None Listed	24/25
Calibrator	D(-)-Mannitol	1%	69-65-8	200-711-8	None Listed	None Listed	None Listed
	Serum Albumin	3%	9048-46-8	305-179-1	None Listed	None Listed	None Listed
Control	D(-)-Mannitol	1%	69-65-8	200-711-8	None Listed	None Listed	None Listed
	Serum Albumin	3%	9048-46-8	305-179-1	None Listed	None Listed	None Listed

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.

**SECTION 3: HAZARD IDENTIFICATION****D(-)-MANNITOL & 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.**DIMETHYL SULFOXIDE:****EMERGENCY OVERVIEW***Hygroscopic (absorbs moisture from the air).***Potential Health Effects****Eye:** May cause mild eye irritation.**Skin:** DMSO readily penetrates skin and may significantly enhance the absorption of numerous chemicals. Increased absorption of these other chemicals could lead to their increased toxicity. Skin sensitization was not observed with DMSO in human volunteers or in guinea pigs. Non-immunological whealing and flaring have been observed in animals and humans following short-term contact. Skin absorption of DMSO may result in a garlic-like breath and body odor, and CNS effects such as headache, nausea and dizziness.**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system effects. May cause garlic smell on the breath and body.**Inhalation:** Material has a very low vapor pressure and inhalation exposures are not expected unless material is heated or misted.**Chronic:** Long-term skin application of 80-90% DMSO has produced CNS effects (such as fatigue, nausea, vomiting, sedation, dizziness and headache), and dermatitis (such as redness, dryness and scaling) in volunteers. A garlic-like breath odor has been noted.

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		D(-)-Mannitol	Serum Albumin	1,2-Propanediol
HMIS RATING	HEALTH:	0	1	0
	FLAMMABILITY:	0	0	2
	REACTIVITY:	0	0	1
NFPA RATING	HEALTH:	0	0	0
	FLAMMABILITY:	0	0	2
	REACTIVITY:	0	0	1
HAZARD SYMBOLS:		None Listed	None Listed	None Listed
R-Phrase:		None Listed	None Listed	None Listed
S-Phrase:		None Listed	None Listed	24/25

**SECTION 4: FIRST AID MEASURES**
**D(-)-MANNITOL:**

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

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

**Notes to Physician:** None.

**SERUM ALBUMIN:**

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**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.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

**Notes to Physician:** None.

**DIMETHYL SULFOXIDE:**

**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, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. 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. 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.

**Notes to Physician:** Treat symptomatically and supportively.

**SECTION 5: FIRE FIGHTING MEASURES**
**D(-)-MANNITOL:**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air.

**Extinguishing Media:** For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

**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 chemical foam.

**DIMETHYL SULFOXIDE:**

**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. Combustible liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam. Alcohol-resistant fire fighting foam is recommended for use on all water-soluble liquids or polar solvent-type liquids.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Wash area with soap and water. Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

**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.

**DIMETHYL SULFOXIDE**

**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. Remove all sources of ignition. Provide ventilation.

**SECTION 7: HANDLING AND STORAGE****D(-)-MANNITOL:**

**Handling:** Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.

**Storage:** Store in a tightly closed container. Store in a dry area. Keep refrigerated. (Store below 4°C/39°F.)

**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.

**DIMETHYL SULFOXIDE**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation. Keep away from heat and flame.

**Storage:** Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Storage under a nitrogen blanket has been recommended. Store protected from moisture.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****D(-)-MANNITOL:**

**Engineering Controls:**  
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**  
CAS# 69-65-8: None Listed

**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:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**SERUM ALBUMIN:**

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

**Exposure Limits**  
CAS# 94349-60-7: None Listed

**Personal Protective Equipment**

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

**DIMETHYL SULFOXIDE**

**Engineering Controls:**  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits:**  
CAS# 67-68-5:  
Germany: 160 mg/m<sup>3</sup> TWA Germany: Skin absorber  
Netherlands: 50 ppm MAC; 150 mg/m<sup>3</sup> MAC  
Russia: 20 mg/m<sup>3</sup> TWA

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- Eyes:** Wear chemical splash goggles.
- 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.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****D(-)-MANNITOL:**

<b>Physical State:</b>	Solid
<b>Color:</b>	white
<b>Odor:</b>	Odorless.
<b>pH:</b>	Not available
<b>Vapor Pressure:</b>	Negligible.
<b>Viscosity:</b>	Not available
<b>Boiling Point:</b>	Not available
<b>Freezing/Melting Point:</b>	167°C (332.60°F)
<b>Autoignition Temperature:</b>	Not available.
<b>Flash Point:</b>	Not available
<b>Explosion Limits: Lower:</b>	Not available
<b>Explosion Limits: Upper:</b>	Not available
<b>Decomposition Temperature:</b>	Not available
<b>Solubility in water:</b>	Soluble in water.
<b>Specific Gravity/Density:</b>	Not available.
<b>Molecular Formula:</b>	C <sub>6</sub> H <sub>14</sub> O <sub>6</sub>
<b>Molecular Weight:</b>	182.0944

**SERUM ALBUMIN:**

<b>Physical State:</b>	Powder
<b>Color:</b>	slightly yellow - beige
<b>Odor:</b>	weak odor
<b>pH:</b>	7.0 0.2
<b>Vapor Pressure:</b>	Not available
<b>Viscosity:</b>	Not available
<b>Boiling Point:</b>	Not available
<b>Freezing/Melting Point:</b>	Not available
<b>Autoignition Temperature:</b>	Not available
<b>Flash Point:</b>	Not available
<b>Explosion Limits: Lower:</b>	Not available
<b>Explosion Limits: Upper:</b>	Not available
<b>Decomposition Temperature:</b>	Not available
<b>Solubility in water:</b>	Not available
<b>Specific Gravity/Density:</b>	Not available
<b>Molecular Formula:</b>	Not available
<b>Molecular Weight:</b>	Not available

**DIMETHYL SULFOXIDE:**

<b>Physical State:</b>	Liquid
<b>Color:</b>	clear, colorless
<b>Odor:</b>	practically odorless
<b>pH:</b>	Not available
<b>Vapor Pressure:</b>	0.46 mm Hg @ 20°C
<b>Viscosity:</b>	1.1 cp @ 27°C
<b>Boiling Point:</b>	189°C (372.20°F)
<b>Freezing/Melting Point:</b>	18.4°C (65.12°F)
<b>Autoignition Temperature:</b>	215°C (419.00°F)
<b>Flash Point:</b>	87.8°C (190.04°F)
<b>Explosion Limits: Lower:</b>	2.6 vol %
<b>Explosion Limits: Upper:</b>	42 vol %
<b>Decomposition Temperature:</b>	Not available
<b>Solubility in water:</b>	Soluble
<b>Specific Gravity/Density:</b>	1.100 g/ml
<b>Molecular Formula:</b>	C <sub>2</sub> H <sub>6</sub> OS
<b>Molecular Weight:</b>	78.13

**SECTION 10: STABILITY AND REACTIVITY****D(-)-MANNITOL:**

<b>Chemical Stability:</b>	Stable under normal temperatures and pressures.
<b>Conditions to Avoid:</b>	Incompatible materials.
<b>Incompatibilities with Other Materials:</b>	Not available
<b>Hazardous Decomposition Products:</b>	Carbon monoxide, carbon dioxide.
<b>Hazardous Polymerization:</b>	Has not been reported.

**SERUM ALBUMIN:**

<b>Chemical Stability:</b>	Stable under normal temperatures and pressures.
<b>Conditions to Avoid:</b>	Incompatible materials, exposure to moist air or water.
<b>Incompatibilities with Other Materials:</b>	Strong oxidizing agents.
<b>Hazardous Decomposition Products:</b>	Not available
<b>Hazardous Polymerization:</b>	Will not occur.

**DIMETHYL SULFOXIDE:**

<b>Chemical Stability:</b>	Stable at room temperature in closed containers under normal storage and handling conditions. Hygroscopic: absorbs moisture or water from the air.
<b>Conditions to Avoid:</b>	Ignition sources, moisture, excess heat.
<b>Incompatibilities with Other Materials:</b>	Strong oxidizing agents, strong acids, strong bases, acid chlorides.
<b>Hazardous Decomposition Products:</b>	Carbon monoxide, oxides of sulfur, carbon dioxide, formaldehyde, dimethyl sulfide.
<b>Hazardous Polymerization:</b>	Will not occur.

**SECTION 11: TOXICOLOGICAL INFORMATION****D(-)-MANNITOL:**

<b>RTECS#:</b>	CAS# 69-65-8: OP2060000
<b>LD50/LC50:</b>	RTECS: CAS# 69-65-8: Oral, mouse: LD50 = 22 gm/kg; Oral, rat: LD50 = 13500 mg/kg;
<b>Carcinogenicity:</b>	D-mannitol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
<b>Other:</b>	See actual entry in RTECS for complete information.

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**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.

**DIMETHYL SULFOXIDE:**

**RTECS#:** CAS# 67-68-5: PV6210000  
**LD50/LC50:** RTECS:  
**CAS# 67-68-5:** Draize test, rabbit, eye: 100 mg; Draize test, rabbit, eye: 500 mg/24H Mild; Draize test, rabbit, skin: 500 mg/24H Mild; Oral, mouse: LD50 = 7920 mg/kg; Oral, rat: LD50 = 14500 mg/kg; Skin, rat: LD50 = 40 gm/kg;  
**Carcinogenicity:** Dimethyl sulfoxide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.  
**Other:** See actual entry in RTECS for complete information.

**SECTION 12: ECOLOGICAL INFORMATION****D(-)-MANNITOL, SERUM ALBUMIN & DIMETHYL SULFOXIDE:****Other:** No information available.**SECTION 13: DISPOSAL CONSIDERATIONS****D(-)-MANNITOL & DIMETHYL SULFOXIDE:**

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.

**SERUM ALBUMIN:**

Dispose of in a manner consistent with federal, state, and local regulations.

**SECTION 14: TRANSPORTATION INFORMATION****D(-)-MANNITOL, SERUM ALBUMIN & DIMETHYL SULFOXIDE:**

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

**SECTION 15: REGULATORY INFORMATION****D(-)-MANNITOL:****European/International Regulations**

European Labeling in Accordance with EC Directives  
Hazard Symbols: Not available  
Risk Phrases:  
Safety Phrases:

WGK (Water Danger/Protection)  
CAS# 69-65-8: 0

Canada  
CAS# 69-65-8 is listed on Canada's DSL List

**US Federal**

TSCA  
CAS# 69-65-8 is listed on the TSCA Inventory.

**SERUM ALBUMIN:****European/International Regulations**

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

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

Canada

**US Federal**

TSCA  
CAS# 94349-60-7 is not listed on the TSCA Inventory. It is for research and development use only.

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**DIMETHYL SULFOXIDE:****European/International Regulations**

European Labeling in Accordance with EC Directives

Hazard Symbols: None Listed

Risk Phrases: None Listed

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)

CAS# 67-68-5: 1

Canada

CAS# 67-68-5 is listed on Canada's DSL List

**US Federal**

TSCA

CAS# 67-68-5 is listed on the TSCA Inventory.

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**SECTION 16: OTHER INFORMATION**

PREPARED BY: Diazyme Administration

PHONE NO: 858-455-4754

DATE PREPARED: 26 May 2006

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.