

MATERIAL SAFETY DATA SHEET

LDH Diaphorase

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 09/01/2010
Revision: 09/01/2010
Supersedes Revision: 03/05/2007
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009318
Product Name: LDH Diaphorase
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Avoid contact and inhalation.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Health Hazards (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.
Signs and Symptoms Of Exposure: Exposure may cause sensitization.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	RTECS #
1. Dehydrogenase, lipoamide	9001-18-7	30.0 -50.0 %	232-587-6	NA
2. Sodium chloride	7647-14-5	45.0 -60.0 %	231-598-3	VZ4725000
3. Potassium chloride	7447-40-7	0.0 -10.0 %	231-211-8	TS8050000
4. Sodium phosphate, Dibasic	7558-79-4	0.0 -15.0 %	231-448-7	WC4500000
5. Potassium phosphate, Monobasic	7778-77-0	0.0 -10.0 %	231-913-4	TC6615500

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: No data available.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.

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6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Avoid release into the environment.
 Avoid raising and breathing dust, and provide adequate ventilation.
 As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
 Transfer to a proper chemical waste container for disposal.

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
 Wash thoroughly after handling

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
 Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep tightly closed.
 Store at correct temperature.

Other Precautions: Hygroscopic.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Dehydrogenase, lipoamide	9001-18-7	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium chloride	7447-40-7	No data.	No data.	No data.
4. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
5. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
 Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: Gas Liquid Solid

Melting Point: No data.

Boiling Point: No data.

Autoignition Pt: No data.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Specific Gravity (Water = 1): No data.

Bulk density: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: No data.

Percent Volatile: No data.

Heat Value: No data.

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Particle Size:	No data.
Corrosion Rate:	No data.
pH:	No data.
Appearance and Odor:	A lyophilized powder

10. Stability and Reactivity

Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	No data available.
Incompatibility - Materials To Avoid:	strong acids strong oxidizing agents
Hazardous Decomposition Or Byproducts:	hydrogen chloride gas phosphorus oxides potassium oxides sodium oxides
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. Toxicological Information

:	The toxicological effects of this product have not been thoroughly studied.
Carcinogenicity/Other Information:	No data available.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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13. Disposal Considerations

Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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14. Transport Information

LAND TRANSPORT (US DOT)	
DOT Proper Shipping Name	Not dangerous goods.
LAND TRANSPORT (European ADR/RID)	
ADR/RID Shipping Name	Not dangerous goods.
AIR TRANSPORT (ICAO/IATA)	
ICAO/IATA Shipping Name	Not dangerous goods.
Additional Transport Information:	Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes	
No data available.	
European Community Risk and Safety Phrases	
S24/25 - Avoid contact with skin and eyes.	
S37/39 - Wear suitable gloves and eye/face protection.	
US EPA SARA Title III	

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Dehydrogenase, lipoamide	9001-18-7	No	No	No	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Potassium chloride	7447-40-7	No	No	No	No
4. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
5. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No

US EPA CAA, CWA, TSCA					
Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. Dehydrogenase, lipoamide	9001-18-7	HAP, ODC ()	No	Inventory	

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Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
2. Sodium chloride	7647-14-5	HAP, ODC ()	No	Inventory	
3. Potassium chloride	7447-40-7	HAP, ODC ()	No	Inventory	
4. Sodium phosphate, Dibasic	7558-79-4	HAP, ODC ()	No	Inventory	
5. Potassium phosphate, Monobasic	7778-77-0	HAP, ODC ()	No	Inventory	

16. Other Information

Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

MATERIAL SAFETY DATA SHEET

LDH NAD+ (100X)

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

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Supersedes Revision: 03/05/2007
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009319
Product Name: LDH NAD+ (100X)
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Avoid contact and inhalation.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Health Hazards (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.
Signs and Symptoms Of Exposure: No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	RTECS #
1. beta-Nicotinamide adenine dinucleotide	53-84-9	0.0 -15.0 %	200-184-4	UU3450000
2. Sodium chloride	7647-14-5	0.0 -5.0 %	231-598-3	VZ4725000
3. Potassium chloride	7447-40-7	0.0 -1.0 %	231-211-8	TS8050000
4. Sodium phosphate, Dibasic	7558-79-4	0.0 -5.0 %	231-448-7	WC4500000
5. Potassium phosphate, Monobasic	7778-77-0	0.0 -1.0 %	231-913-4	TC6615500
6. Water	7732-18-5	73.0 -100.0 %	231-791-2	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: No data available.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

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LDH NAD+ (100X)

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Unsuitable Extinguishing Media: A solid water stream may be inefficient.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Avoid release into the environment.
 Avoid breathing vapors and provide adequate ventilation.
 As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
 Absorb spill with inert material (e.g. dry sand or earth), then place in a proper chemical waste container.

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
 Wash thoroughly after handling

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
 Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep tightly closed.
 Store at correct temperature.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. beta-Nicotinamide adenine dinucleotide	53-84-9	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium chloride	7447-40-7	No data.	No data.	No data.
4. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
5. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
6. Water	7732-18-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
 Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Melting Point: No data.

Boiling Point: No data.

Autoignition Pt: No data.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Specific Gravity (Water = 1): No data.

Bulk density: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: No data.

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LDH NAD+ (100X)

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Supercedes Revision: 03/05/2007

Percent Volatile: No data.
Heat Value: No data.
Particle Size: No data.
Corrosion Rate: No data.
pH: No data.
Appearance and Odor: No data available.

10. Stability and Reactivity

Stability: Unstable [] Stable [X]
Conditions To Avoid - Instability: No data available.
Incompatibility - Materials To Avoid: No data available.
Hazardous Decomposition Or Byproducts: No data available.
Possibility of Hazardous Reactions: Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions: No data available.

11. Toxicological Information

: The toxicological effects of this product have not been thoroughly studied.
Carcinogenicity/Other Information: No data available.
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

: Avoid release into the environment.
 Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.
LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name Not dangerous goods.
AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Shipping Name Not dangerous goods.
Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. beta-Nicotinamide adenine dinucleotide	53-84-9	No	No	No	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Potassium chloride	7447-40-7	No	No	No	No
4. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
5. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
6. Water	7732-18-5	No	No	No	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. beta-Nicotinamide adenine dinucleotide	53-84-9	HAP, ODC ()	No	Inventory	

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Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
2. Sodium chloride	7647-14-5	HAP, ODC ()	No	Inventory	
3. Potassium chloride	7447-40-7	HAP, ODC ()	No	Inventory	
4. Sodium phosphate, Dibasic	7558-79-4	HAP, ODC ()	No	Inventory	
5. Potassium phosphate, Monobasic	7778-77-0	HAP, ODC ()	No	Inventory	
6. Water	7732-18-5	HAP, ODC ()	No	Inventory	

16. Other Information

Company Policy or Disclaimer

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DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

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LDH Lactic Acid (100X)

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 09/01/2010
Revision: 09/01/2010
Supersedes Revision: 03/05/2007
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009320
Product Name: LDH Lactic Acid (100X)
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Avoid contact and inhalation.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Health Hazards (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.
Signs and Symptoms Of Exposure: No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	RTECS #
1. L-Lactic acid	79-33-4	1.0 -10.0 %	201-196-2	OD3100000
2. Sodium chloride	7647-14-5	0.0 -5.0 %	231-598-3	VZ4725000
3. Potassium chloride	7447-40-7	0.0 -1.0 %	231-211-8	TS8050000
4. Sodium phosphate, Dibasic	7558-79-4	0.0 -5.0 %	231-448-7	WC4500000
5. Potassium phosphate, Monobasic	7778-77-0	0.0 -1.0 %	231-913-4	TC6615500
6. Water	7732-18-5	78.0 -99.0 %	231-791-2	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: No data available.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

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Unsuitable Extinguishing Media: A solid water stream may be inefficient.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Avoid release into the environment.
 Avoid breathing vapors and provide adequate ventilation.
 As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
 Absorb spill with inert material (e.g. dry sand or earth), then place in a proper chemical waste container.

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
 Wash thoroughly after handling

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
 Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep tightly closed.
 Store at correct temperature.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. L-Lactic acid	79-33-4	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium chloride	7447-40-7	No data.	No data.	No data.
4. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
5. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.
6. Water	7732-18-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
 Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Melting Point: No data.

Boiling Point: No data.

Autoignition Pt: No data.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Specific Gravity (Water = 1): No data.

Bulk density: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: No data.

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LDH Lactic Acid (100X)

Percent Volatile: No data.
Heat Value: No data.
Particle Size: No data.
Corrosion Rate: No data.
pH: No data.
Appearance and Odor: No data available.

10. Stability and Reactivity

Stability: Unstable [] Stable [X]
Conditions To Avoid - Instability: No data available.
Incompatibility - Materials To Avoid: No data available.
Hazardous Decomposition Or Byproducts: No data available.
Possibility of Hazardous Reactions: Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions: No data available.

11. Toxicological Information

: The toxicological effects of this product have not been thoroughly studied.
Carcinogenicity/Other Information: No data available.
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

: Avoid release into the environment.
 Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.
LAND TRANSPORT (European ADR/RID)
ADR/RID Shipping Name Not dangerous goods.
AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Shipping Name Not dangerous goods.
Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. L-Lactic acid	79-33-4	No	No	No	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Potassium chloride	7447-40-7	No	No	No	No
4. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
5. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No
6. Water	7732-18-5	No	No	No	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. L-Lactic acid	79-33-4	HAP, ODC ()	No	Inventory	

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LDH Lactic Acid (100X)

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Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
2. Sodium chloride	7647-14-5	HAP, ODC ()	No	Inventory	
3. Potassium chloride	7447-40-7	HAP, ODC ()	No	Inventory	
4. Sodium phosphate, Dibasic	7558-79-4	HAP, ODC ()	No	Inventory	
5. Potassium phosphate, Monobasic	7778-77-0	HAP, ODC ()	No	Inventory	
6. Water	7732-18-5	HAP, ODC ()	No	Inventory	

16. Other Information

Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 09/01/2010
Revision: 09/01/2010
Supersedes Revision: 03/05/2007
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009321
Product Name: LDH Standard
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Avoid contact and inhalation.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Health Hazards (Acute and Chronic): Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.
Signs and Symptoms Of Exposure: Exposure may cause sensitization.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	RTECS #
1. L-Lactic dehydrogenase	9001-60-9	75.0 -85.0 %	232-617-8	NA
2. Sodium chloride	7647-14-5	10.0 -25.0 %	231-598-3	VZ4725000
3. Potassium chloride	7447-40-7	0.0 -5.0 %	231-211-8	TS8050000
4. Sodium phosphate, Dibasic	7558-79-4	0.0 -5.0 %	231-448-7	WC4500000
5. Potassium phosphate, Monobasic	7778-77-0	0.0 -5.0 %	231-913-4	TC6615500

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: No data available.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.

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 Supersedes Revision: 03/05/2007

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Avoid release into the environment.
 Avoid raising and breathing dust, and provide adequate ventilation.
 As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
 Transfer to a proper chemical waste container for disposal.

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
 Wash thoroughly after handling

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
 Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep tightly closed.
 Store at correct temperature.

Other Precautions: Hygroscopic.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. L-Lactic dehydrogenase	9001-60-9	No data.	No data.	No data.
2. Sodium chloride	7647-14-5	No data.	No data.	No data.
3. Potassium chloride	7447-40-7	No data.	No data.	No data.
4. Sodium phosphate, Dibasic	7558-79-4	No data.	No data.	No data.
5. Potassium phosphate, Monobasic	7778-77-0	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
 Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: Gas Liquid Solid

Melting Point: No data.

Boiling Point: No data.

Autoignition Pt: No data.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Specific Gravity (Water = 1): No data.

Bulk density: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: No data.

Percent Volatile: No data.

Heat Value: No data.

MATERIAL SAFETY DATA SHEET

LDH Standard

Particle Size:	No data.
Corrosion Rate:	No data.
pH:	No data.
Appearance and Odor:	A lyophilized powder

10. Stability and Reactivity

Stability:	Unstable [<input type="checkbox"/>] Stable [<input checked="" type="checkbox"/>]
Conditions To Avoid - Instability:	No data available.
Incompatibility - Materials To Avoid:	strong oxidizing agents
Hazardous Decomposition Or Byproducts:	hydrogen chloride gas sodium oxides
Possibility of Hazardous Reactions:	Will occur [<input type="checkbox"/>] Will not occur [<input checked="" type="checkbox"/>]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. Toxicological Information

:	The toxicological effects of this product have not been thoroughly studied.
Carcinogenicity/Other Information:	No data available.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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13. Disposal Considerations

Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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14. Transport Information

LAND TRANSPORT (US DOT)	
DOT Proper Shipping Name	Not dangerous goods.
LAND TRANSPORT (European ADR/RID)	
ADR/RID Shipping Name	Not dangerous goods.
AIR TRANSPORT (ICAO/IATA)	
ICAO/IATA Shipping Name	Not dangerous goods.
Additional Transport Information:	Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes	
No data available.	
European Community Risk and Safety Phrases	
S24/25 - Avoid contact with skin and eyes.	
S37/39 - Wear suitable gloves and eye/face protection.	
US EPA SARA Title III	

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. L-Lactic dehydrogenase	9001-60-9	No	No	No	No
2. Sodium chloride	7647-14-5	No	No	No	No
3. Potassium chloride	7447-40-7	No	No	No	No
4. Sodium phosphate, Dibasic	7558-79-4	No	Yes 5000 LB	No	No
5. Potassium phosphate, Monobasic	7778-77-0	No	No	No	No

US EPA CAA, CWA, TSCA					
Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. L-Lactic dehydrogenase	9001-60-9	HAP, ODC ()	No	Inventory	
2. Sodium chloride	7647-14-5	HAP, ODC ()	No	Inventory	
3. Potassium chloride	7447-40-7	HAP, ODC ()	No	Inventory	

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LDH Standard

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Printed: 09/01/2010

Revision: 09/01/2010

Supercedes Revision: 03/05/2007

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
4. Sodium phosphate, Dibasic	7558-79-4	HAP, ODC ()	No	Inventory	
5. Potassium phosphate, Monobasic	7778-77-0	HAP, ODC ()	No	Inventory	

16. Other Information

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MATERIAL SAFETY DATA SHEET

Cell-Based Assay Buffer Tablet

Page: 1

Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 03/31/2010
Revision: 03/30/2010
Supersedes Revision: 07/28/2009
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009322
Product Name: Cell-Based Assay Buffer Tablet
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Irritant.
Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection
Health Hazards (Acute and Chronic): Material is irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
Causes eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.
Signs and Symptoms Of Exposure: No data available.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#
1. Phosphate buffered saline (PBS) tablet	NA	100.0 %	NA

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: Emits toxic fumes under fire conditions.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Avoid release into the environment.
Avoid raising and breathing dust, and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
Transfer to a proper chemical waste container for disposal.

Cell-Based Assay Buffer Tablet

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Keep tightly closed.
Store at correct temperature.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Phosphate buffered saline (PBS) tablet	NA	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information: Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

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

Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: [] Gas [] Liquid [X] Solid

Melting Point: No data.

Boiling Point: No data.

Autoignition Pt: No data.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Specific Gravity (Water = 1): No data.

Bulk density: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: No data.

Percent Volatile: No data.

Heat Value: No data.

Particle Size: No data.

Corrosion Rate: No data.

pH: No data.

Appearance and Odor: tablet(s)

10. Stability and Reactivity

Stability: Unstable [] Stable [X]

Conditions To Avoid - Instability: No data available.

Incompatibility - Materials To Avoid: strong acids

Hazardous Decomposition Or Byproducts: No data available.

Possibility of Hazardous Reactions: Will occur [] Will not occur [X]

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Cell-Based Assay Buffer Tablet

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 Printed: 03/31/2010
 Revision: 03/30/2010
 Supercedes Revision: 07/28/2009

Conditions To Avoid - Hazardous Reactions: No data available.

11. Toxicological Information

: The toxicological effects of this product have not been thoroughly studied.
Carcinogenicity/Other Information: No data available.
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

: Avoid release into the environment.
 Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)
DOT Proper Shipping Name Not dangerous goods.
LAND TRANSPORT (European ADR/RID)
ADR/RID Proper Shipping Name Not dangerous goods.
AIR TRANSPORT (ICAO/IATA)
ICAO/IATA Proper Shipping Name Not dangerous goods.
Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes Xi: Irritant
European Community Risk and Safety Phrases
 R36/37/38 - Irritating to eyes, respiratory system and skin.
 S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Phosphate buffered saline (PBS) tablet	NA	No	No	No	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. Phosphate buffered saline (PBS) tablet	NA	HAP, ODC ()	No	No	

16. Other Information

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MATERIAL SAFETY DATA SHEET

LDH INT (100X)

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 09/01/2010
Revision: 09/01/2010
Supersedes Revision: 03/05/2007
Date Created: 03/05/2007

1. Product and Company Identification

Product Code: 10009328
Product Name: LDH INT (100X)
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335

2. Hazards Identification

Emergency Overview: Combustible.
Target Organ(s): eyes, skin.
The hazards identified with this product are those associated with the solvent(s).

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Health Hazards (Acute and Chronic): Material is readily absorbed through skin.
Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation, ingestion, or skin absorption.
May cause eye, skin, or respiratory system irritation.
The toxicological properties of this product have not been fully evaluated.

LD 50 / LC 50: Please refer to Section 11.

Signs and Symptoms Of Exposure: Ingestion may cause gastrointestinal irritation with nausea, vomiting, diarrhea, headache, and dizziness.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC#	RTECS #
1. 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyltetrazolium chloride	146-68-9	0.0 -15.0 %	205-676-2	NA
2. Dimethyl sulfoxide, anhydrous	67-68-5	85.0 -100.0 %	200-664-3	PV6210000

4. First Aid Measures

Emergency and First Aid Procedures: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.
In case of skin contact, immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: 89.00 C Method Used: Closed Cup
Explosive Limits: LEL: 3.5% at 25.0 C UEL: 42% at 25.0 C
Autoignition Pt: 215.00 C
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Note: Combustible as diluted in dimethyl sulfoxide

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LDH INT (100X)

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Revision: 09/01/2010

Supercedes Revision: 03/05/2007

Unusual Fire and Explosion Hazards:	Can release vapors that form explosive mixtures at temperatures at or above the flashpoint. Container explosion may occur under fire conditions. Emits toxic fumes under fire conditions. Sensitive to static discharge.
Hazardous Combustion Products:	No data available.
Suitable Extinguishing Media:	Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media:	A solid water stream may be inefficient.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled:	Avoid release into the environment. Avoid breathing vapors and provide adequate ventilation. Remove all sources of ignition. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.
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7. Handling and Storage

Hazard Label Information:	Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling
Precautions To Be Taken in Handling:	Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated exposure. Keep away from sources of ignition. Prevent the build up of electrostatic charge.
Precautions To Be Taken in Storing:	Keep away from heat, sparks, and flame. Keep tightly closed. Store at correct temperature.
Other Precautions:	Hygroscopic.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyltetrazolium chloride	146-68-9	No data.	No data.	No data.
2. Dimethyl sulfoxide, anhydrous	67-68-5	No data.	No data.	No data.

Protective Equipment Summary - Hazard Label Information:	Compatible chemical-resistant gloves Eye wash station in work area Lab coat Safety glasses Safety shower in work area Vent Hood
Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Eye Protection:	Safety glasses
Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
Ventilation:	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States:	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Solid
Melting Point:	No data.
Boiling Point:	No data.
Autoignition Pt:	215.00 C
Flash Pt:	89.00 C Method Used: Closed Cup

MATERIAL SAFETY DATA SHEET

LDH INT (100X)

Page: 3

Printed: 09/01/2010

Revision: 09/01/2010

Supersedes Revision: 03/05/2007

Explosive Limits:	LEL: 3.5% at 25.0 C UEL: 42% at 25.0 C
Specific Gravity (Water = 1):	No data.
Bulk density:	No data.
Vapor Pressure (vs. Air or mm Hg):	0.37 MM_HG at 20.0 C
Vapor Density (vs. Air = 1):	No data.
Evaporation Rate (vs Butyl Acetate=1):	No data.
Solubility in Water:	No data.
Percent Volatile:	No data.
Heat Value:	No data.
Particle Size:	No data.
Corrosion Rate:	No data.
pH:	No data.
Appearance and Odor:	No data available.

10. Stability and Reactivity

Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	heat, flames and sparks
Incompatibility - Materials To Avoid:	acid chlorides phosphorus halides strong acids alkali metals strong oxidizing agents strong reducing agents
Hazardous Decomposition Or Byproducts:	carbon monoxide carbon dioxide sulfur oxides
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. Toxicological Information

:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	DMSO - Toxicity Data: Oral LD50 (rat): 14,500 mg/kg; Inhalation LC50 (rat): 40,250 ppm (4h); Dermal LD50 (rabbit): > 5,000 mg/kg; Irritation Data: Eyes (rabbit): 500 mg (24h) mild; Skin (rabbit): 500 mg (24h) mild; Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. DMSO RTECS Number: PV6210000
Carcinogenicity/Other Information:	No data available.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
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13. Disposal Considerations

Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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14. Transport Information

LAND TRANSPORT (US DOT)	
DOT Proper Shipping Name	Not dangerous goods.
LAND TRANSPORT (European ADR/RID)	
ADR/RID Shipping Name	Not dangerous goods.

MATERIAL SAFETY DATA SHEET

LDH INT (100X)

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 Printed: 09/01/2010
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 Supercedes Revision: 03/05/2007

AIR TRANSPORT (ICAO/IATA)

ICAO/IATA Shipping Name

Not dangerous goods.

Additional Transport Information:

Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

European Community Hazard Symbol codes

No data available.

European Community Risk and Safety Phrases

S24/25 - Avoid contact with skin and eyes.

S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyltetrazolium chloride	146-68-9	No	No	No	No
2. Dimethyl sulfoxide, anhydrous	67-68-5	No	No	No	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	HPV/LPV
1. 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyltetrazolium chloride	146-68-9	HAP, ODC ()	No	Inventory	
2. Dimethyl sulfoxide, anhydrous	67-68-5	HAP, ODC ()	No	Inventory	

16. Other Information

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