



MSDS

P.O. Box 329 - 802 Washington Avenue Chestertown, MD 21620 - USA

MATERIAL SAFETY DATA SHEET

TELEPHONE # FOR INFORMATION 410 778-3100

24 HOUR EMERGENCY NUMBER (CHEM-TEL): USA, Canada, Puerto Rico 800-255-3924;

Outside North American Continent 813-248-0585 (call Collect)

1. Product Identification

Product Code: 4791

Product Description: DEHA Reagent 1

Manufactured By: LaMotte Company

802 Washington Avenue

Chestertown, MD 21620

2. Composition/Information On Ingredients

Hazard	CAS#/Name	%	PEL	TLV
Yes	7697-37-2 Nitric Acid	1.4	5 mg/cubic m	5 mg/cubic m
	Kathon CG/ICP preservative	<0.1		
No	56-40-6 Glycine	<4		
No	7732-18-5 Water	to 100%		

3. Hazards Overview

Primary Route Of Entry: Ingestion Skin

May irritate eyes and skin. Ingestion of large quantities may cause gastrointestinal irritation and circulatory problems.

HMIS Hazard

Scale: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Least

Health: 1 Flammability: 0 Reactivity: 0

Carcinogenicity: None

Other Health Related Comments:

Product Code: 4791

Product Description: DEHA Reagent 1

4. First Aid Measures

Eye Contact: Flush with water for 15 minutes. Consult physician.

Skin Contact: Flush with water. Wash skin with soap and water.

Ingestion: Rinse out mouth. Drink plenty of water. Consult physician.

Inhalation: Remove to fresh air.

5. Fire Fighting Measures

Flash Point (Method Used): N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Not a fire hazard

Special Fire Fighting Procedures: N/A

Unusual Fire & Explosion Hazard: N/A

6. Accidental Release Measures

Cover spill with sodium bicarbonate. Wash neutralized slurry down drain with excess water.

7. Handling & Storage

Store in cool, dry, storage area away from incompatible materials.

8. Exposure Controls/Personal Protection

Ventilation

Normal

Protection When Handling

Gloves Eye Protection Lab Coat

Work/Hygenic Practices: Avoid contact with skin and clothing.

9. Physical & Chemical Properties

Appearance:	Clear Colorless Liquid	Vapor Density:	<1 (Air=1)
Solubility In Water:	Soluble	Vapor Pressure:	Unknown
Odor:	None	Boiling Point:	>100 deg C
pH:	adjusted to 2.7	Melting Point:	N/A

10. Stability & Reactivity

Stable:	Yes
Conditions To Avoid:	N/A
Incompatibility (Materials To Avoid):	Strong alkali
Hazardous Decomposition Products:	NOx

11. Toxicological Information

Oral (human) LDLo: 430 mg/kg for nitric acid, concentrated. Investigated as a mutagen, reproductive effector.

Target Organs: Skin

12. Ecological Information

Information Not Yet Available

13. Disposal Considerations

Neutralize with sodium bicarbonate. Pour neutralized solution down drain with excess of running water. Dispose according to federal, state and local regulations.

15. Regulatory Information

Chemical Inventory Status

Hazard	Ingredient	USA	Europe	--- Canada ---		Australia	Japan
		TSCA	EC	DSL	NDSL		
Yes	7697-37-2 Nitric Acid	Yes	Yes	Yes	No	Yes	Yes
No	56-40-6 Glycine	Yes	Yes	Yes	No	Yes	Yes
No	7732-18-5 Distilled Water	Yes	Yes	Yes	No	Yes	Yes

Federal, State, & International Regulations

Ingredient	--- SARA 302 ---		----- SARA 313 -----		CERCLA	RCRA 261.33	TSCA 8(D)
	RQ	TPQ	Listed	Chemical Category			
7697-37-2 Nitric Acid	1000	1000	Yes	No	1000	No	No
56-40-6 Glycine	No	No	No	No	No	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

Product Code: 4791

Product Description: DEHA Reagent 1

--- SARA 311/312 ---

Hazard Categories

----- Australia -----

**Hazchem
Code**

**Poison
Schedule**

**This MSDS Is
WHMIS Compliant**

Ingredient

Acute

Chronic

Fire

Pressure

Reactivity

7697-37-2
Nitric Acid

Yes

Yes

Yes No

Yes

2PE

S6

56-40-6
Glycine

No

No

No No

No

None Allocated

None Allocated

7732-18-5
Distilled Water

No

No

No No

No

None Allocated

None Allocated

**product 4791
as a whole**

Yes

Yes

No No

No

None Allocated

None Allocated

Yes

16. Other Information

Prepared By: IP, Regulatory Affairs Department

Revised: 11/20/2004



MSDS

P.O. Box 329 - 802 Washington Avenue Chestertown, MD 21620 - USA

MATERIAL SAFETY DATA SHEET

TELEPHONE # FOR INFORMATION 410 778-3100

24 HOUR EMERGENCY NUMBER (CHEM-TEL): USA, Canada, Puerto Rico 800-255-3924;

Outside North American Continent 813-248-0585 (call Collect)

1. Product Identification

Product Code: 4793

Product Description: DEHA Reagent 3

Manufactured By: LaMotte Company

802 Washington Avenue

Chestertown, MD 21620

2. Composition/Information On Ingredients

Hazard	CAS#/Name	%	PEL	TLV
Yes	7697-37-2 Nitric Acid	2.8	5 mg/cubic m	5 mg/cubic m
Yes	7782-61-8 Ferric Nitrate 9-Hydrate	1	N/E	1 mg/cubic m as Fe
No	7732-18-5 Water	to 100%		

3. Hazards Overview

Primary Route Of Entry: Ingestion Skin

May cause eye and skin irritation and burns.

HMIS Hazard

Scale: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Least

Health: 1 Flammability: 0 Reactivity: 1

Carcinogenicity: None

Other Health Related Comments:

Product Code: 4793

Product Description: DEHA Reagent 3

4. First Aid Measures

Eye Contact: Flush with water for 15 minutes. Consult physician.

Skin Contact: Flush thoroughly with water while removing affected clothing. Wash skin with soap and water.

Ingestion: Rinse out mouth. Drink plenty of water. Call a doctor immediately.

Inhalation: Remove to fresh air.

5. Fire Fighting Measures

Flash Point (Method Used): N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Not a fire hazard

Special Fire Fighting Procedures: N/A

Unusual Fire & Explosion Hazard: Contact with combustibles or powdered metals can cause fire.

6. Accidental Release Measures

Cover spill with sodium bicarbonate. Mop up and pour neutralized solution down drain with an excess of running water.

7. Handling & Storage

Store in cool, dry, storage area away from incompatible materials.

8. Exposure Controls/Personal Protection

Ventilation

Normal

Protection When Handling

Gloves Eye Protection Lab Coat

Work/Hygenic Practices: Avoid contact with skin and clothing.

9. Physical & Chemical Properties

Appearance: Clear Colorless Liquid

Solubility In Water: Soluble

Odor: None

pH: pH adjusted to 1

Vapor Density: Unknown

Vapor Pressure: Unknown

Boiling Point: >100 deg C

Melting Point: N/A

10. Stability & Reactivity

Stable: Yes

Conditions To Avoid: Heat

Incompatibility (Materials To Avoid): Metals, strong reducing agents, combustible materials, strong alkalies

Hazardous Decomposition Products: NOx

11. Toxicological Information

oral rat LD50: 3250 mg/kg for Ferric Nitrate solid; Oral Human LDLo 430 mg/kg for nitric acid

Target Organs: Corrosive TO ALL body parts

12. Ecological InformationInformation Not Yet Available

13. Disposal Considerations

Neutralize with sodium bicarbonate. Pour neutralized solution down drain with an excess of running water. Dispose according to federal, state and local regulations.

14. Transportation Information**Proper Shipping Name:****DOT:** NITRIC ACID**IATA:** NITRIC ACID
<20%**Hazard Class/Div:****DOT:** 8**IATA:** 8**UN:** 2031**Packing Group:** II

15. Regulatory Information**Chemical Inventory Status**

Hazard	Ingredient	USA	Europe	--- Canada ---		Australia	Japan
		TSCA	EC	DSL	NDSL		
Yes	7697-37-2 Nitric Acid	Yes	Yes	Yes	No	Yes	Yes
Yes	10421-48-4 Ferric Nitrate, anhydrous	Yes	Yes	Yes	No	Yes	Yes
No	7732-18-5 Distilled Water	Yes	Yes	Yes	No	Yes	Yes

Federal, State, & International Regulations

Ingredient	--- SARA 302 ---		----- SARA 313 -----		CERCLA	RCRA 261.33	TSCA 8(D)
	RQ	TPQ	Listed	Chemical Category			
7697-37-2 Nitric Acid	1000	1000	Yes	No	1000	No	No
10421-48-4 Ferric Nitrate, anhydrous	No	No	No	Nitrate cmpd.	1000	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

Product Code: 4793

Product Description: DEHA Reagent 3

--- SARA 311/312 ---

Hazard Categories

----- Australia -----

**Hazchem
Code**

**Poison
Schedule**

**This MSDS Is
WHMIS Compliant**

Ingredient

Acute

Chronic

Fire

Pressure

Reactivity

7697-37-2
Nitric Acid

Yes

Yes

Yes No

Yes

2PE

S6

10421-48-4
Ferric Nitrate, anhydrous

Yes

Yes

Yes No

Yes

1[T]

None Allocated

7732-18-5
Distilled Water

No

No

No No

No

None Allocated

None Allocated

**product 4793
as a whole**

Yes

No

No No

No

None Allocated

None Allocated

Yes

16. Other Information

Prepared By: IP, Regulatory Affairs Department

Revised: 8/22/2005



MSDS

P.O. Box 329 - 802 Washington Avenue Chestertown, MD 21620 - USA

MATERIAL SAFETY DATA SHEET

TELEPHONE # FOR INFORMATION 410 778-3100

24 HOUR EMERGENCY NUMBER (CHEM-TEL): USA, Canada, Puerto Rico 800-255-3924;

Outside North American Continent 813-248-0585 (call Collect)

1. Product Identification

Product Code: 4792

Product Description: DEHA Reagent 2

Manufactured By: LaMotte Company

802 Washington Avenue

Chestertown, MD 21620

2. Composition/Information On Ingredients

Hazard	CAS#/Name	%	PEL	TLV
Yes	1310-73-2 Sodium Hydroxide	<0.1	C 2 mg/cubic m	C 2 mg/cubic m
No	69898-45-9 Ferrozine	0.7		
No	7732-18-5 Water	to 100%		

3. Hazards Overview

Primary Route Of Entry: Ingestion Skin

Large doses by mouth can cause GI irritation. May irritate eyes and skin.

HMIS Hazard

Scale: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Least

Health: 1 Flammability: 0 Reactivity: 0

Carcinogenicity: None

Other Health Related Comments:

Product Code: 4792

Product Description: DEHA Reagent 2

4. First Aid Measures

Eye Contact: Flush with water for 15 minutes.

Skin Contact: Flush thoroughly with water. Wash with soap and water.

Ingestion: Rinse mouth. Drink water. Consult physician.

Inhalation: N/A

5. Fire Fighting Measures

Flash Point (Method Used): N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Not a fire hazard

Special Fire Fighting Procedures: N/A

Unusual Fire & Explosion Hazard: N/A

6. Accidental Release Measures

Neutralize with vinegar or dilute hydrochloric acid (6 M HCl). Mop up and flush to drain with excess water.

7. Handling & Storage

Store in cool, dry, storage area away from incompatible materials.

8. Exposure Controls/Personal Protection

Ventilation

Normal

Protection When Handling

Gloves Eye Protection Lab Coat

Work/Hygenic Practices: Avoid contact with skin or clothing.

9. Physical & Chemical Properties

Appearance: Pale Yellow Liquid

Solubility In Water: Soluble

Odor: None

pH: 11-12

Vapor Density: Unknown

Vapor Pressure: Unknown

Boiling Point: ca. 100 degC

Melting Point: Unknown

10. Stability & Reactivity

Stable: Yes

Conditions To Avoid: N/A

Incompatibility (Materials To Avoid): N/A

Hazardous Decomposition Products: N/A

11. Toxicological Information

Target Organs: N/A

Product Code: 4792

Product Description: DEHA Reagent 2

12. Ecological Information

Information Not Yet Available

13. Disposal Considerations

Neutralize and wash down drain with excess water. Dispose according to federal, state and local regulations.

14. Transportation Information

Not Regulated For Transport

15. Regulatory Information

Chemical Inventory Status

Hazard	Ingredient	USA	Europe	--- Canada ---		Australia	Japan
		TSCA	EC	DSL	NDSL		
Yes	1310-73-2 Sodium Hydroxide	Yes	Yes	Yes	No	Yes	Yes
No	69898-45-9 Ferrozine	Yes	Yes	No	No	Yes	No
No	7732-18-5 Distilled Water	Yes	Yes	Yes	No	Yes	Yes

Federal, State, & International Regulations

Ingredient	--- SARA 302 ---		----- SARA 313 -----		CERCLA	RCRA 261.33	TSCA 8(D)
	RQ	TPQ	Listed	Chemical Category			
1310-73-2 Sodium Hydroxide	No	No	No	No	1000	No	No
69898-45-9 Ferrozine	No	No	No	No	No	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

Product Code: 4792

Product Description: DEHA Reagent 2

--- SARA 311/312 ---

----- Australia -----

Hazard Categories

**Hazchem
Code**

**Poison
Schedule**

**This MSDS Is
WHMIS Compliant**

Ingredient **Acute** **Chronic** **Fire** **Pressure** **Reactivity**

1310-73-2 Yes No No No Yes
Sodium Hydroxide

69898-45-9 No No No Yes No None Allocated None Allocated
Ferrozine

7732-18-5 No No No No No None Allocated None Allocated
Distilled Water

product 4792 No No No No No None Allocated None Allocated Yes
as a whole

16. Other Information

Prepared By: IP, Regulatory Affairs Department

Revised: 3/3/2003



MSDS

P.O. Box 329 - 802 Washington Avenue Chestertown, MD 21620 - USA

MATERIAL SAFETY DATA SHEET

TELEPHONE # FOR INFORMATION 410 778-3100

24 HOUR EMERGENCY NUMBER (CHEM-TEL): USA, Canada, Puerto Rico 800-255-3924;

Outside North American Continent 813-248-0585 (call Collect)

1. Product Identification

Product Code: 4004

Product Description: Sodium Hydroxide, 1.0 N

Manufactured By: LaMotte Company

802 Washington Avenue

Chestertown, MD 21620

2. Composition/Information On Ingredients

Hazard	CAS#/Name	%	PEL	TLV
Yes	1310-73-2 Sodium Hydroxide	4	C 2 mg/cubic m	C 2 mg/cubic m
No	7732-18-5 Water	to 100%		

3. Hazards Overview

Primary Route Of Entry: Skin Ingestion

Warning! Corrosive. Can cause severe irritation or burns to all body tissue. Harmful if swallowed.

HMIS Hazard

Scale: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Least

Health: 2 Flammability: 0 Reactivity: 1

Carcinogenicity: None:

Other Health Related Comments:

Product Code: 4004

Product Description: Sodium Hydroxide, 1.0 N

4. First Aid Measures

Eye Contact: Immediately flush with water for 15 minutes. Consult a physician.

Skin Contact: Immediately flush with water for 15 minutes. Remove affected clothing and rinse skin thoroughly.

Ingestion: Do not induce vomiting. Rinse out mouth. Drink plenty of water. Call a doctor immediately.

Inhalation: N/A

5. Fire Fighting Measures

Flash Point (Method Used): N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Not a fire hazard

Special Fire Fighting Procedures: N/A

Unusual Fire & Explosion Hazard: N/A

6. Accidental Release Measures

Wear gloves and eye protection. Carefully neutralize with vinegar or other dilute acid (6 M HCl). Mop up and flush to drain with excess water.

7. Handling & Storage

Store in cool, dry, storage area away from acids and other incompatible materials.

8. Exposure Controls/Personal Protection

Ventilation

Normal

Protection When Handling

Eye Protection Gloves Lab Coat

Work/Hygenic Practices: Avoid contact with eyes, skin and clothing. Wash after handling.

9. Physical & Chemical Properties

Appearance: Clear Colorless Liquid

Solubility In Water: Soluble

Odor: None

pH: 14

Vapor Density: <1 (Air=1)

Vapor Pressure: <17 mm Hg @ 20 deg C

Boiling Point: 102 deg C (5% soln)

Melting Point: (-) 4 deg C (5% soln)

10. Stability & Reactivity

Stable: Yes

Conditions To Avoid: N/A

Incompatibility (Materials To Avoid): Strong acids, metals

Hazardous Decomposition Products: N/A

11. Toxicological Information

Sodium hydroxide investigated as a tumorigen, mutagen.

Target Organs: Corrosive to all body parts Skin

Product Code: 4004

Product Description: Sodium Hydroxide, 1.0 N

12. Ecological Information

Information Not Yet Available

13. Disposal Considerations

Neutralize and flush down drain with excess water. Dispose according to federal, state and local regulations.

14. Transportation Information

Proper Shipping Name:

DOT: SODIUM HYDROXIDE SOLUTION

IATA: SODIUM HYDROXIDE SOLUTION

Hazard Class/Div:

DOT: 8

IATA: 8

UN: 1824

Packing Group: II

15. Regulatory Information

Chemical Inventory Status

Hazard	Ingredient	USA	Europe	--- Canada ---		Australia	Japan
		TSCA	EC	DSL	NDSL		
Yes	1310-73-2 Sodium Hydroxide	Yes	Yes	Yes	No	Yes	Yes
No	7732-18-5 Distilled Water	Yes	Yes	Yes	No	Yes	Yes

Federal, State, & International Regulations

Ingredient	--- SARA 302 ---		----- SARA 313 -----		CERCLA	RCRA 261.33	TSCA 8(D)
	RQ	TPQ	Listed	Chemical Category			
1310-73-2 Sodium Hydroxide	No	No	No	No	1000	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

Product Code: 4004

Product Description: Sodium Hydroxide, 1.0 N

--- SARA 311/312 ---

----- Australia -----

Hazard Categories

Ingredient	Acute	Chronic	Fire	Pressure	Reactivity	Hazchem Code	Poison Schedule	This MSDS Is WHMIS Compliant
1310-73-2 Sodium Hydroxide	Yes	No	No	No	Yes	2R	S6	
7732-18-5 Distilled Water	No	No	No	No	No	None Allocated	None Allocated	
product 4004 as a whole	Yes	No	No	No	No	2R	S5	Yes

16. Other Information

Prepared By: IP, Regulatory Affairs Department

Revised: 6/12/2006
