



# 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; 2 ppm	5 mg/cubic m; 2 ppm
	Kathon CG/ICP preservative	<0.1		
Yes	56-40-6 Glycine	<4	None Established	None Established
No	7732-18-5 Water	to 100%	None Established	None Established

### 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:**

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**Product Code:** 4791

**Product Description:** DEHA Reagent 1

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#### **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.

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#### **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

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#### **6. Accidental Release Measures**

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

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#### **7. Handling & Storage**

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

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## **8. Exposure Controls/Personal Protection**

### **Ventilation**

Normal

### **Protection When Handling**

Gloves Eye Protection Lab Coat

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

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## **9. Physical & Chemical Properties**

**Appearance:** Clear Colorless Liquid

**Solubility In Water:** Soluble

**Odor:** None

**pH:** adjusted to 2.7

**Vapor Density:** <1 (Air=1)

**Vapor Pressure:** Unknown

**Boiling Point:** >100 deg C

**Melting Point:** N/A

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## **10. Stability & Reactivity**

**Stable:** Yes

**Conditions To Avoid:** N/A

**Incompatibility (Materials To Avoid):** Strong alkali

**Hazardous Decomposition Products:** NOx

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## **11. Toxicological Information**

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

**Target Organs:** Skin

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**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.

**14. Transportation Information**

Not Regulated For Transport

**15. Regulatory Information**

**Chemical Inventory Status**

Hazard	Ingredient	Chemical Inventory Status					
		USA TSCA	Europe EC	--- Canada --- DSL NDSL		Australia	Japan
Yes	7697-37-2 Nitric Acid	Yes	Yes	Yes	No	Yes	Yes
Yes	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

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**Product Code:** 4791

**Product Description:** DEHA Reagent 1

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--- SARA 311/312 ---

**Hazard Categories**

----- Australia -----

**Hazchem**

**Poison**

**This MSDS Is**

<b>Ingredient</b>	<b>Acute</b>	<b>Chronic</b>	<b>Fire</b>	<b>Pressure</b>	<b>Reactivity</b>	<b>Code</b>	<b>Schedule</b>	<b>WHMIS Compliant</b>
7697-37-2 Nitric Acid	Yes	Yes	No	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	
<b>product 4791 as a whole</b>	Yes	Yes	No	No	No	None Allocated	None Allocated	Yes

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**16. Other Information**

**Prepared By:** Regulatory Affairs Department

**Revised:** 7/11/2009

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**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**

<b>Hazard</b>	<b>CAS#/Name</b>	<b>%</b>	<b>PEL</b>	<b>TLV</b>
Yes	1310-73-2 Sodium Hydroxide	<0.1	C 2 mg/m <sup>3</sup>	C 2 mg/m <sup>3</sup>
Yes	69898-45-9 Ferrozine Iron Reagent, Monohydrate	0.7	None Established	None Established
No	7732-18-5 Water	to 100%	None Established	None Established

**3. Hazards Overview****Primary Route Of Entry:** Skin Ingestion

May be harmful if swallowed. May irritate eyes, nose, skin and respiratory tract.

**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:**

**4. First Aid Measures**

**Eye Contact:** Flush thoroughly with water for 15 minutes. If irritation develops, call physician.

**Skin Contact:** Flush with water for 15 minutes while removing affected clothing/shoes. Wash with soap and water. If irritation develops, call physician.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Rinse mouth and drink several glasses of water. Call physician.

**Inhalation:** Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and seek immediate medical attention.

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**5. Fire Fighting Measures**

**Flash Point (Method Used):** N/A

**LEL:** N/A

**UEL:** N/A

**Extinguishing Media:** Dry chemical, CO<sub>2</sub>, or water spray

**Special Fire Fighting Procedures:** N/A

**Unusual Fire & Explosion Hazard:** N/A

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**6. Accidental Release Measures**

Wearing appropriate PPE, absorb spill onto inert material (vermiculite/sand) and containerize. Hold for disposal in accordance to federal, state, and local regulations. If permitted, neutralize w/dilute HCl and flush to drain with excess water.

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**7. Handling & Storage**

Store tightly closed in a cool, dry, area away from incompatible materials.

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## **8. Exposure Controls/Personal Protection**

### **Ventilation**

Normal

### **Protection When Handling**

Eye Protection Gloves Lab Coat

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

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## **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° C

**Melting Point:** Unknown

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## **10. Stability & Reactivity**

**Stable:** Yes

**Conditions To Avoid:** N/A

**Incompatibility (Materials To Avoid):** Strong oxidizing materials

**Hazardous Decomposition Products:** CO<sub>x</sub>, SO<sub>x</sub>, NO<sub>x</sub>

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## **11. Toxicological Information**

**Target Organs:** N/A

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Product Code: 4792

Product Description: DEHA Reagent 2

## 12. Ecological Information

Information Not Yet Available.

## 13. Disposal Considerations

Dispose in accordance to federal, state, and local regulations. If permitted, neutralize then flush to drain with excess water.

## 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
Yes	69898-45-9 Benzenesulfonicacid,4,4'-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt	Yes	Yes	No	No	No	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 Benzenesulfonicacid,4,4'-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt	No	No	No	No	No	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

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**Product Code:** 4792

**Product Description:** DEHA Reagent 2

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--- 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   Yes   No   No   No   No   None Allocated   None Allocated  
Benzenesulfonicacid,4,4'-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt

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**

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**16. Other Information**

Keep out of reach of children.

**Prepared By:** Regulatory Affairs Department

**Revised:** 4/6/2009

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**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**

<b>Hazard</b>	<b>CAS#/Name</b>	<b>%</b>	<b>PEL</b>	<b>TLV</b>
Yes	7697-37-2 Nitric Acid	2.8	5 mg/cubic m; 2 ppm	5 mg/cubic m; 2 ppm
Yes	7782-61-8 Ferric Nitrate 9-Hydrate	1	N/E	1 mg/cubic m, sol iron salt as Fe
No	7732-18-5 Water	to 100%	None Established	None Established

**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:**

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**Product Code:** 4793

**Product Description:** DEHA Reagent 3

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#### **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.

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#### **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.

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#### **6. Accidental Release Measures**

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

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#### **7. Handling & Storage**

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

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## **8. Exposure Controls/Personal Protection**

### **Ventilation**

Normal

### **Protection When Handling**

Gloves Eye Protection Lab Coat

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

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## **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

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## **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

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## **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

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**Product Code:** 4793

**Product Description:** DEHA Reagent 3

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**12. Ecological Information**

Information Not Yet Available

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**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.

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**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

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**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

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**Product Code:** 4793

**Product Description:** DEHA Reagent 3

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**Federal, State, & International Regulations**

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

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**Product Code:** 4793

**Product Description:** DEHA Reagent 3

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--- SARA 311/312 ---  
**Hazard Categories**

----- **Australia** -----  
**Hazchem**      **Poison**

**This MSDS Is**  
**WHMIS Compliant**

<b>Ingredient</b>	<b>Acute</b>	<b>Chronic</b>	<b>Fire</b>	<b>Pressure</b>	<b>Reactivity</b>	<b>Code</b>	<b>Schedule</b>	
7697-37-2 Nitric Acid	Yes	Yes	No	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	
<b>product 4793 as a whole</b>	Yes	No	No	No	No	None Allocated	None Allocated	Yes

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**16. Other Information**

**Prepared By:** Regulatory Affairs Department

**Revised:** 8/22/2005

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