

The following list contains the Material Safety Data Sheets you requested. Please scroll down to view the requested MSDS(s).

<u>Product</u>	<u>MSDS</u>	<u>Distributor</u>	<u>Format</u>	<u>Language</u>	<u>Quantity</u>
2168049	N/A	Hach Company	OSHA	English	1

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Total Enclosures: 1

World Headquarters  
Hach Company  
P.O.Box 389  
Loveland, CO USA 80539  
(970) 669-3050

MSDS No: M00444

# Material Safety Data Sheet

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** DEHA 2 Reagent  
**Catalog Number:** 2168049

Hach Company  
P.O.Box 389  
Loveland, CO USA 80539  
(970) 669-3050

Emergency Telephone Numbers:  
(Medical and Transportation)  
(303) 623-5716 24 Hour Service  
(515)232-2533 8am - 4pm CST

**MSDS Number:** M00444  
**Chemical Name:** Not applicable.  
**CAS No.:** Not applicable.  
**Chemical Formula:** Not applicable.  
**Chemical Family:** Not applicable  
**Hazard:** Causes burns.  
**Date of MSDS Preparation:**  
**Day:** 3  
**Month:** 05  
**Year:** 2002

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

### Ferric Nitrate

**CAS No.:** 7782648  
**TSCA CAS Number:** 10421-48 4  
**Percent Range:** 1.0 - 5.0  
**Percent Range Units:** weight / weight  
**LD50:** Oral rat LD<sub>50</sub> = 3250 mg/kg.  
**LC50:** None reported.  
**TLV:** 1 mg/m<sup>3</sup> (as Fe)  
**PEL:** 1 mg/m<sup>3</sup> (as Fe)  
**Hazard:** Oxidizer. May cause irritation.

### Nitric Acid

**CAS No.:** 7697372  
**TSCA CAS Number:** 7697-37-2  
**Percent Range:** 5.0 - 15.0  
**Percent Range Units:** weight / weight  
**LD50:** Oral human LDLo = 430 mg/kg.  
**LC50:** Inhalation rat LC<sub>50</sub> = 625 ppm/4hours.  
**TLV:** 2 ppm  
**PEL:** 2 ppm  
**Hazard:** Causes severe burns. Oxidizer.

### Demineralized Water

**CAS No.:** 7732185  
**TSCA CAS Number:** 7732-18-5  
**Percent Range:** 85.0 - 95.0  
**Percent Range Units:** weight / weight  
**LD50:** None reported  
**LC50:** None reported  
**TLV:** Not established  
**PEL:** Not established

**Hazard:** No effects anticipated.

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### 3. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** Clear, colorless

**Odor:** None

CAUSES BURNS

**HMIS:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

**Protective Equipment:** X - See protective equipment, Section 8.

**NFPA:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

**Symbol:** Not applicable

**Potential Health Effects:**

**Eye Contact:** Causes eye burns.

**Skin Contact:** Causes burns.

**Skin Absorption:** None reported

**Target Organs:** None reported

**Ingestion:** Causes: burns Iron poisoning is indicated by pink urine discoloration. Very large doses may cause: abdominal cramps black stool diarrhea gastrointestinal irritation vomiting liver damage coma

**Target Organs:** Liver

**Inhalation:** Causes: burns May cause: bronchitis pneumonitis teeth erosion

**Target Organs:** None reported

**Medical Conditions Aggravated:** Pre-existing: Eye conditions Kidney conditions Liver conditions Respiratory conditions Skin conditions

**Chronic Effects:** Chronic overexposure may cause adverse effects to the blood erosion of the teeth

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

**Additional Cancer / Reproductive Toxicity Information:** None reported

**Toxicologically Synergistic Products:** None reported

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### 4. FIRST AID

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.

**Skin Contact (First Aid):** Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.

**Ingestion (First Aid):** Do not induce vomiting. Give 1-2 glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

**Inhalation:** Remove to fresh air.

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### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Not Flammable, but reacts with most metals to form flammable hydrogen gas. Strong oxidizer. Contact with combustible materials may cause a fire.

**Flash Point:** Not applicable.

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable.  
**Upper Explosion Limits:** Not applicable.  
**Autoignition Temperature:** Not applicable.  
**Hazardous Combustion Products:** Toxic fumes of: nitrogen oxides.  
**Fire / Explosion Hazards:** Contact with metals gives off hydrogen gas which is flammable May react violently with: combustible materials  
**Static Discharge:** None reported.  
**Mechanical Impact:** None reported  
**Extinguishing Media:** Water.  
**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

### **Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.

**Containment Technique:** Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.

**Clean-up Technique:** Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.

**Evacuation Procedure:** Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.

**Special Instructions (for accidental release):** Product is regulated as RCRA hazardous waste. Product is regulated as a hazardous water pollutant.

**304 EHS RQ (40 CFR 355):** Nitric Acid 1000 lbs.

**D.O.T. Emergency Response Guide Number:** 154

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## 7. HANDLING / STORAGE

**Handling:** Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

**Storage:** Store in a cool, dry place. Keep away from: combustible materials metals

**Flammability Class:** Not applicable

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## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Have an eyewash station nearby. Have a safety shower nearby. Use a fume hood to avoid exposure to dust, mist or vapor.

### **Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves lab coat

**Inhalation Protection:** laboratory fume hood

**Precautionary Measures:** Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling.

**TLV:** Not established.

**PEL:** Not established.

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## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Clear, colorless

**Physical State:** Liquid

**Molecular Weight:** Not applicable.

**Odor:** None

**pH:** < 0.5

**Vapor Pressure:** Not determined.

**Vapor Density (air = 1):** Not determined.

**Boiling Point:** ~ 100°C (~212°F)  
**Melting Point:** Not determined.  
**Specific Gravity (water = 1):** 1.062  
**Evaporation Rate (water = 1):** Not determined.  
**Volatile Organic Compounds Content:** None.  
**Partition Coefficient (n-octanol / water):** Not applicable.  
**Solubility:**  
**Water:** Miscible.  
**Acid:** Miscible.  
**Other:** Not determined.  
**Metal Corrosivity:**  
**Steel:** 52.2 in/yr (1325.9 mm/yr)  
**Aluminum:** 0.12 in/yr (3.048 mm/yr)

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## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Conditions to Avoid:** Excess moisture  
**Reactivity / Incompatibility:** May react violently in contact with: combustible materials organic materials reducers  
**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: hydrogen nitrate nitrogen oxides  
**Hazardous Polymerization:** Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

**Product Toxicological Data:**  
**LD50:** None reported.  
**LC50:** None reported.  
**Dermal Toxicity Data:** None reported.  
**Skin and Eye Irritation Data:** None reported.  
**Mutation Data:** None reported.  
**Reproductive Effects Data:** None reported.  
**Ingredient Toxicological Data:** Nitric Acid: Oral rat LD<sub>50</sub> = 430 mg/kg; Inhalation rat LC<sub>50</sub> = 625 ppm/4 hours. Ferric Nitrate: Oral rat LD<sub>50</sub> = 3250 mg/kg.

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** --  
No ecological data available for this product.  
**Ingredient Ecological Information:** --  
No ecological data available for the ingredients of this product.

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** D002  
**Special Instructions (Disposal):** Work in an approved fume hood. Working in a large container, cautiously add small portions of the material to cold water with agitation. Do not breathe the fumes. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain.  
**Empty Containers:** Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.  
**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

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## 14. TRANSPORT INFORMATION

**D.O.T.:**  
**D.O.T. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<15% Nitric Acid/<5% Ferric Nitrate Solution)

**DOT Hazard Class:** 8  
**DOT Subsidiary Risk:** NA  
**DOT ID Number:** UN3264  
**DOT Packing Group:** II

**I.C.A.O.:**

**I.C.A.O. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<15% Nitric Acid/<5% Ferric Nitrate Solution)

**ICAO Hazard Class:** 8  
**ICAO Subsidiary Risk:** NA  
**ICAO ID Number:** UN3264  
**ICAO Packing Group:** II

**I.M.O.:**

**I.M.O. Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(<15% Nitric Acid/<5% Ferric Nitrate Solution)

**I.M.O. Hazard Class:** 8  
**I.M.O. Subsidiary Risk:** NA  
**I.M.O. ID Number:** UN3264  
**I.M.O. Packing Group:** II

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## 15. REGULATORY INFORMATION

**U.S. Federal Regulations:**

**O.S.H.A.:** This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard.  
(29 CFR 1910.1200)

**E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Immediate (Acute) Health Hazard Delayed  
(Chronic) Health Hazard Fire Hazard

**S.A.R.A. Title III Section 313 (40 CFR 372):** This product contains a chemical(s) subject to the reporting  
requirements of Section 313 of Title III of SARA.  
Nitric Acid

**302 (EHS) TPQ (40 CFR 355):** Nitric acid: 1000 lbs.

**304 CERCLA RQ (40 CFR 302.4):** Nitric acid: Ferric nitrate: (each) = 1000 lbs.

**304 EHS RQ (40 CFR 355):** Nitric Acid 1000 lbs.

**Clean Water Act (40 CFR 116.4):** Ferric nitrate - RQ 1000 lbs. Nitric acid - RQ 1000 lbs.

**RCRA:** Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

**C.P.S.C.:** The label for this product bears the signal word "POISON" because the concentration of Nitric Acid in the  
product is greater than/equal to 5%.

**State Regulations:**

**California Prop. 65:** No Prop. 65 listed chemicals are present in this product.

**Identification of Prop. 65 Ingredient(s):** Not applicable

**Trade Secret Registry:** Not applicable

**National Inventories:**

**U.S. Inventory Status:** All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

**TSCA CAS Number:** Not applicable.

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## 16. OTHER INFORMATION

**Intended Use:** Determination of N,N-diethylhydroxylamine

**References:** 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54,  
No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and  
Safety. Hamilton, Ontario Canada: 30 June 1993. IARC Monographs on the Evaluation of the Carcinogenic Risks to  
Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. In-house information. List of  
Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of  
Dangerous Substances, Amended July 1992. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and  
Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. TLV's Threshold Limit Values  
and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992.  
Vendor Information.

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**Legend:**

NA - Not Applicable  
ND - Not Determined  
NV - Not Available

w/w - weight/weight  
w/v - weight/volume  
v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE.  
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