

## SAFETY DATA SHEET

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### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Name:** FerroZine<sup>®</sup> Iron Reagent Solution Pillows  
**Catalog Number:** 230166

HACH LANGE GmbH  
Willstätterstrasse 11  
40549 Düsseldorf, Germany  
+49-(0)211-52880

Emergency Telephone Numbers:  
(Poison Information Center Main)  
(+49 (0) 6131 19240) 24 HR

**SDS Number:** M00186

**Chemical Name:** Not applicable

**Chemical Formula:** Not applicable

**Chemical Family:** Not applicable

**Use of the substance/preparation:** Indicator for iron

**CAS No.:** Not applicable

**Hazard:** Toxic. Causes eye burns.

**Date of MSDS Preparation:**

**Day:** 11

**Month:** May

**Year:** 2006

**Additional Emergency Response Numbers:** Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33-(0)1-40370404, Italy: +39-02-66101029, Netherlands: +31-(0)30-2748888, Switzerland: +41-(0)1-2515151

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### 2. COMPOSITION / INFORMATION ON INGREDIENTS

#### Demineralized Water

**EEC Number:** 2317912

**CAS No.:** 7732-18-5

**Percent Range:** 30,0 - 40,0

**Percent Range Units:** volume / volume

**Ingredient EEC Symbol:** Not applicable

**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** Not established

#### Ammonium Thioglycolate

**EEC Number:** 2265409

**CAS No.:** 5421-46-5

**Percent Range:** 15,0 - 25,0

**Percent Range Units:** weight / volume

**Ingredient EEC Symbol:** Not applicable

**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** For ammonia, 20 ppm (14 mg/m<sup>3</sup>); STEL: 50 ppm (36 mg/m<sup>3</sup>)  
Recommended

**Other component**

**EEC Number:** Not applicable

**CAS No.:** Not applicable

**Percent Range:** < 1,0

**Percent Range Units:** weight / volume

**Ingredient EEC Symbol:** Not applicable

**Ingredient R phrase(s) (R phrase details given in Heading 16):** Not applicable

**TLV:** Not established

**PEL:** Not established

**EU Occupational Exposure Limits:** Not established

**Thioglycolic acid**

**EEC Number:** 2006774

**CAS No.:** 68-11-1

**Percent Range:** 40,0 - 50,0

**Percent Range Units:** volume / volume

**Ingredient EEC Symbol:** T - TOXIC

**Ingredient R phrase(s) (R phrase details given in Heading 16):** R 23/24/25

**TLV:** 1 ppm

**PEL:** 1 ppm

**EU Occupational Exposure Limits:** 4 mg/m<sup>3</sup>

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### 3. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance:** Clear, yellow liquid

**Odor:** Strong, skunk-like

**EU Symbols:** T - TOXIC

**R PHRASES:** R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 34: Causes burns.

**Protective Equipment:**

**Potential Health Effects:**

**Eye Contact (EC):** Causes severe irritation

**Skin Contact (EC):** May cause irritation

**Skin Absorption (EC):** Toxic

**Target Organs (SA E):** None Reported

**Ingestion (EC):** Toxic May cause: abdominal pain ulceration of the digestive tract

**Target Organs (Ing E):** None Reported

**Inhalation:** Toxic May cause: weakness difficult breathing respiratory tract irritation

**Target Organs (Inh E):** None Reported

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

**Chronic Effects:** None reported

**Cancer / Reproductive Toxicity Information:**

This product does NOT contain any IARC listed chemicals.

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

**Toxicologically Synergistic Products:** None reported

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### 4. FIRST AID MEASURES

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.  
**Skin Contact (First Aid):** Wash skin with soap and plenty of water. Call physician if irritation develops.  
**Ingestion (First Aid):** Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.  
**Inhalation:** Remove to fresh air. Give artificial respiration if necessary. Call physician.

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## 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Can burn in fire, releasing toxic vapors.  
**Hazardous Combustion Products:** Toxic fumes of: carbon monoxide, carbon dioxide, nitrogen oxides, sulfur oxides.  
**Fire / Explosion Hazards:** None reported  
**Static Discharge:** None reported.  
**Mechanical Impact:** None reported  
**Extinguishing Media:** Dry chemical.  
**Extinguishing Media NOT To Be Used:** Not applicable  
**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

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## 6. ACCIDENTAL RELEASE MEASURES

**Spill Response Notice:**  
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. 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.

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## 7. HANDLING AND 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:** Keep away from: acids  
**Special Packaging Instructions:** Not applicable  
**Use of the substance/preparation:** Indicator for iron

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## 8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

**Engineering Controls:** Use a fume hood to avoid exposure to dust, mist or vapor. Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.  
**Personal Protective Equipment:**  
**Eye Protection:** chemical splash goggles  
**Skin / Hand Protection:** neoprene 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. Keep away from: acids/acid fumes  
**TLV:** Not established  
**PEL:** Not established  
**EU Occupational Exposure Limits:** Not established

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## 9. PHYSICAL / CHEMICAL PROPERTIES

**Appearance:** Clear, yellow liquid

**Physical State:** Liquid

**Odor:** Strong, skunk-like

**pH:** 3,5

**Vapor Pressure:** Not available

**Vapor Density (air = 1):** Not available

**Boiling Point:** Not available

**Melting Point:** Not available

**Flash Point:** Not applicable

**Method:** Not applicable

**Autoignition Temperature:** Not available

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Specific Gravity (water = 1):** 1,310

**Evaporation Rate (water = 1):** 0,21

**Volatile Organic Compounds Content:** Not available

**Partition Coefficient (n-octanol / water):** Not available

**Solubility:**

**Water:** Miscible

**Acid:** Miscible

**Other:** Not determined

**Metal Corrosivity:**

**Steel:** 0,022 in/yr

**Aluminum:** 0,004 in/yr

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## 10. STABILITY / REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Conditions to Avoid:** Extreme temperatures Exposure to light.

**Reactivity / Incompatibility:** May react violently in contact with: strong acids oxidizers

**Hazardous Decomposition:** Heating to decomposition releases toxic and/or corrosive fumes of: ammonia nitrogen oxides sulfur oxides

**Hazardous Polymerization:** Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

**Product Toxicological Data:**

**LD50:** Oral rat LD50 = 190 mg/kg

**LC50:** None reported

**Dermal Toxicity Data:** None reported

**Skin and Eye Irritation Data:** None reported

**Mutation Data:** None reported

**Reproductive Effects Data:** None reported

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**Ingredient Toxicological Data:** Thioglycolic acid - Oral rat LD50 = 114 mg/kg; Skin rabbit LDLo = 300 mg/kg

This product does NOT contain any IARC listed chemicals.

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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

**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. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

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## 14. TRANSPORT INFORMATION

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

**I.C.A.O. Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.  
(Thiocycolic Acid/Ammonium Thioglycolate Solution)

**ICAO Hazard Class:** 6,1

**ICAO Subsidiary Risk:** NA

**ICAO UN/ID Number:** UN2810

**ICAO Packing Group:** III

**I.M.O.:**

**I.M.O. Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.  
(Thioglycolic Acid/Ammonium Thioglycolate Solution)

**I.M.O. Hazard Class:** 6,1

**I.M.O. Subsidiary Risk:** NA

**I.M.O. UN Number:** UN2810

**I.M.O. Packing Group:** III

**A.D.R.:**

**A.D.R. Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.  
(Thioglycolic Acid/Ammonium Thioglycolate Solution)

**A.D.R. Hazard Class:** 6,1

**A.D.R. Subsidiary Risk:** NA

**A.D.R. UN-Number:** 2810

**A.D.R. Packing Group:** III

**Additional Information:** This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

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## 15. REGULATORY INFORMATION

**National Inventories:**

**EEC Inventory Status:** All ingredients used to make this product are listed on EINECS / ELINCS.

**EEC Number:** Not applicable

**EEC LABEL COPY:**

**EU Symbols:** T - TOXIC

**R PHRASES:** R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 34: Causes burns.

**S PHRASES:** S 25: Avoid contact with eyes. S 27: Take off immediately all contaminated clothing. S 28a: After contact with skin, wash immediately with plenty of water. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## 16. OTHER INFORMATION

**References:** Technical Judgment. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. In-house information. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984.

**R PHRASES:** R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 34: Causes burns.

**Use of the substance/preparation:** Indicator for iron

**Revision Summary:** Updates in Section(s) 14,

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### Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	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.

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