

MATERIAL SAFETY DATA SHEET
CALIFORNIA WATER TECHNOLOGIES, LLC.

DATE PREPARED: March 3, 2003

FERROUS CHLORIDE, SOLUTION

Product Number: None

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferrous Chloride, Solution

Product Number: None

Chemical Name/Synonyms: Iron II Chloride, Solution

Chemical Formula: FeCl₂

Cas Number: 7758-94-3

Manufacturer:

CALIFORNIA WATER Technologies, Inc.

8851 Dice Road

Santa Fe Springs, California 90670

telephone: (866) 337-7427 (for product information)

fax: (562) 698-8036

HS Tariff Classification Number: data not available

Tax ID Number: data not available

****FOR TRANSPORTATION EMERGENCY ONLY, 24 HOURS EVERYDAY, CALL****
****CHEMTREC, 1-800-424-9300****

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS Registry #</u>	<u>% by weight</u>
Ferrous Chloride	7758-94-3	16 - 37
Hydrochloric Acid	7647-01-0	<6.0
Water	7732-18-5	Balance

Hazardous Ingredients: Ferrous Chloride, Hydrochloric Acid

Exposure Limits (ppm):

<u>Component</u>	<u>OSHA TLV</u>	<u>ACGIH TLV</u>	<u>NIOSH</u>
Ferrous Chloride	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , 8-hr TWA	1 mg/m ³ , (as soluble iron salts)
Hydrochloric Acid (As hydrogen chloride gas)	5 ppm ceiling	5 ppm ceiling	100 ppm, IDLH

3. HAZARDS IDENTIFICATION

Emergency Overview

A greenish yellow liquid with a slight odor of iron/acid. Avoid inhaling concentrated vapor or mist, may cause irritation of respiratory tract. May result in severe liver and/or kidney damage, if swallowed, and can be fatal. Do not induce vomiting. Avoid contact with skin. Liquid, mist, or vapor can cause immediate irritation or corrosive burns to all human tissue. Contact with eyes can result in permanent visual loss unless removed quickly by thorough irrigation with water. Contain spills and keep liquid out of water sources. See Sections 3, 4, 5, and 6.

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Potential Health Effects (Acute and Chronic)

INHALATION: Inhalation of concentrated mist or vapor may cause irritation of the respiratory tract.

INGESTION: Ingestion may cause severe liver and/or kidney damage, and may be fatal.

DIRECT CONTACT: The product is an irritant. Contact may include irritation with dryness, discomfort or rash. Ferrous chloride has been infrequently associated with skin sensitization in humans. Extensive exposure could lead to skin ulceration. Severity is generally determined by the concentration and temperature of the solution and duration of exposure

DIRECT EYE CONTACT: Contact with eyes may cause irritation and tearing and eye tissue discoloration, and may result in permanent visual loss unless removed quickly by thorough irrigation with water.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CARCINOGENS (NTP, IARC, or OSHA): None

4. FIRST AID MEASURES:

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

INGESTION: If swallowed, do NOT induce vomiting. Give victim water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Immediately flush with water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

DIRECT EYE CONTACT: Immediately flush with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flammability: Product not flammable.

Flash Point: not applicable

Method used: TCC

OXIDIZING PROPERTIES: data not available

AUTOFLAMMABILITY: not applicable

AUTOIGNITION TEMPERATURE: not applicable

FLAMMABLE LIMITS, % BY VOLUME:

Lower flammable limit: not applicable

Upper flammable limit: not applicable

EXTINGUISHING MEDIA: This product will not support combustion. Use water spray, fog, foam, dry chemical, CO₂ or other agents as appropriate for surrounding fire. Keep container cool.

FIRE FIGHTING INSTRUCTIONS: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. During fire, irritating and toxic gases of hydrogen chloride may be generated as dried material decomposes. Cool exterior of storage tanks.

FIRE AND EXPLOSION HAZARDS: None

SENSITIVITY TO MECHANICAL IMPACT/STATIC DISCHARGE: not applicable

6. ACCIDENTAL RELEASE MEASURES

Contain spill in order to prevent contamination of waterway; neutralize with appropriate alkali such as lime or soda ash. Dispose of neutralized product in accordance with applicable regulations to waste treatment system. Spills of 1000 pounds (454 kilograms) or more must be reported to the **National Response Center, (800) 424-8802**. If water pollution occurs, notify the appropriate authorities.

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7. HANDLING AND STORAGE

Store away from heat, strong alkalis and alkali metals. Keep containers closed and dry. Protect container from physical damage. Do not strike containers or fittings with tools or hard objects. Avoid breathing vapors and/or mist. Avoid making contact with eyes and skin. Wash thoroughly after handling. Emptied container may retain vapor and product residue. See Section 10 for type of packaging material to avoid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Provide good general room ventilation to minimize exposure to vapors and mist.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved, full face respirator as appropriate. Consult respirator manufacturer to determine appropriate equipment.

PROTECTIVE GLOVES: Wear impervious rubber gloves.

EYE PROTECTION: Wear splash proof chemical safety goggles. Do not wear contact lenses.

OTHER PROTECTIVE EQUIPMENT: Wear protective clothing to minimize skin contact. Full-face shield and rubber footwear, acid resistant hood and full-body suit recommended as appropriate. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

WORK/HYGIENIC PRACTICES: Avoid breathing fumes. Use gloves when handling.

OTHER PRECAUTIONS: None.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	green-yellow
Odor:	slightly iron/acid
Odor Threshold:	data not available
Physical State:	liquid
Vapor Pressure (REID):	negligible
Specific Gravity:	20% solution = 1.200 at 17.5° C (water = 1)
Solubility in Water:	complete
pH:	<2.0
Boiling Point:	>212° F or >100° C
Vapor Density:	not applicable (Air = 1)
Evaporation Rate:	<1 (Butyl Acetate = 1)
Melting Point:	20% solution = -58° F
Coefficient of Water/ Oil Distribution:	data not available
Viscosity:	data not available
% Solids:	data not available
% VOC:	data not available

For information on FLASH POINT, FLAMMABILITY, OXIDIZING PROPERTIES, AUTOFLAMMABILITY, and EXPLOSIVE PROPERTIES, please see Section 5.

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Material is stable when properly handled. Material is acidic and corrodes most metals. Avoid contact with strong alkalis, alkali metals and strong oxidizers. Can react violently with Ethylene Oxide, Potassium and Sodium.

HAZARDOUS DECOMPOSITION PRODUCTS: None at normal handling temperatures. May release toxic hydrogen chloride gas when dry solids are heated to decomposition.

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11. TOXICOLOGICAL INFORMATION

Oral Toxicity: Oral LD₅₀ (rat) = 900 mg/kg (based on Iron toxicity)

LC₅₀: no data available

Immediate Effects: Can cause severe liver and/or kidney damage if swallowed, and may even be fatal.

See Section 3 for other immediate health hazards.

Carcinogenicity: not applicable

12. ECOLOGICAL INFORMATION

Chronic Hazard Level: Mild chronic irritant in 2 - 5 month studies, trout showed growth decreases and invertebrates effects: reproduction at 12 and 3 ppm, respectively. For daphnids, reduction was 16% at 4.38 ppm Fe. Marine waters should not exceed 0.3 ppm Fe.

Chronic Plant Toxicity Limit: 1000 ppm

Potential for Accumulation:

Concentration factors for iron:

	<u>marine</u>	<u>freshwater</u>
plants	50,000	5000
invertebrates	20,000	3200
fish	3000	300

Half-life in total human body = 800 days

Chronic Aquatic Toxicity Limit: 130 ppm (*Daphnia magna*)

Persistency: Can persist indefinitely

13. DISPOSAL CONSIDERATIONS

Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (Department of Transportation)

Proper Shipping Name: Ferrous Chloride, Solution

Hazard Class: 8

North America Number: NA 1760

Packing Group: II

Label:

Emergency Response Guide Book Number: 60 (1995), 154 (2000)

Corrosive: skin

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA:

This product is hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

SARA TITLE III (Superfund Amendments and Reauthorization Act of 1986)

Section 302 Extremely Hazardous Substances:

<u>Ingredient</u>	<u>RQ (Reportable Quantity)</u>	<u>TPQ</u>
none		

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Section 311/312 Hazard and Physical Hazards:

Immediate:	yes	Pressure:	no
Delayed:	no	Reactivity:	no
Fire:	no		

Section 313 Toxic Chemicals:

<u>Ingredient</u>	<u>% by Weight</u>
hydrochloric acid	<6.0

CERCLA/SUPERFUND (40 CFR 117, 302)

<u>Ingredient</u>	<u>RQ</u>
ferrous chloride, (dry weight)	100 pounds
hydrochloric acid	5000 pounds

Notification to the **National Response Center, Wash., D.C. (1-800-424-8802)** is required if 100 pounds or more of ferrous chloride, and/or 5000 pounds or more of hydrochloric acid is released.

RCRA: If discarded in its purchased form, this product would be a hazardous waste by listing. Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

DOT: Please see Section 14.

This product contains no Class I or Class II Ozone Depleting Chemicals.

State Regulations:

California	data not available
Michigan	data not available

International Regulations:

CANADA
WHMIS Hazard Class(es): data not available
CEPA: data not available

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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16. OTHER INFORMATION

The following label hazard ratings are recommended for containers of Ferrous Chloride, Solution:
(Hazard Index Key: 4 = severe; 3 = serious; 2 = moderate; 1 = slight; 0 = minimal)

<u>NFPA</u>		<u>HMIS</u>	
Health	not rated	Health	3
Flammability	not rated	Flammability	0
Reactivity	not rated	Reactivity	0

To the best of our knowledge, the information contained herein is accurate. However, neither CALIFORNIA WATER

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DATE PREPARED: June 7,

1995

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Chemicals, Inc., nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist. Consult the manufacturer for further information.

MSDS Status: The entire MSDS has been revised April 23, 2003.