

Product Name: Aqua Aide

## BICI Chemicals

1200 N Peoria  
Tulsa, OK 74106  
1-918-625-8811



# Safety Data Sheet

## 1 PRODUCT IDENTIFICATION

Product Name **Aqua Aide**  
Synonyms 40% solution of: ferric chloride; iron trichloride; iron (III) chloride  
Material Use sewage treatment chemical

**Emergency: 1-800-535-5053**

## 2 HAZARD SUMMARY

GHS Class (Category)	<i>corrosive to metal</i> <b>no Categories</b>	<i>skin irritant</i> <b>(2)</b>	<i>corrosive, eye</i> <b>(1)</b>	<i>acute oral</i> <b>(4)</b>	<i>chronic aquatic</i> <b>(3)</b>
Signal Words	<b>WARNING</b>	<b>WARNING</b>	<b>DANGER</b>	<b>WARNING</b>	<b>no Signal Word</b> <b>no Pictogram</b>
Hazard Statements	<i>may be corrosive to metals (H290)</i>	<i>causes skin irritation (H315)</i>	<i>causes serious eye damage (H318)</i>	<i>harmful if swallowed (H302)</i>	<i>harmful to aquatic life with long-lasting effects (H412)</i>



### GHS Precautionary Statements for Labelling

- P234 Keep only in original container.  
P390 Absorb spillage to prevent material damage.  
P262 Do not get in eyes, on skin or on clothing.  
P264 Wash thoroughly after handling.  
P270, P280 Do not eat, drink or smoke when using this product. Wear eye protection & protective gloves of rubber, PVC or nitrile.  
P273, P391 Avoid release to the environment. Collect spillage.  
P313 & P333 If skin irritation or rash occurs, get medical advice/attention.  
P305, P351, P338 If in eyes, rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

## 3 COMPONENTS

	%	TLV ppm / mg/m <sup>3</sup>	LD <sub>50</sub> (mg/kg) ORAL	LD <sub>50</sub> (mg/kg) SKIN	LC <sub>50</sub> (ppm) INHALATION
Ferric Chloride	30-50%	1 (as Fe)	>440*	not known	not known
Water	50-70%	not toxic	90,000	not toxic	not toxic

## 4 FIRST AID

SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until laundered.  
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.  
INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If victim's breathing stops, administer artificial respiration and seek medical aid promptly.  
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below the hips to prevent inhalation of vomited material. Seek medical help promptly.

**NOTE: Corrosive substance: first aid must be applied immediately!** Inadvertent inhalation of vomited material may seriously damage the lungs. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

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*Product Name: Aqua Aide*

## **5 FLAMMABILITY & FIREFIGHTING**

Flash Point	cannot burn
Autoignition Temperature	cannot burn
Flammable Limits	cannot burn
Combustion Products	chlorine gas may form at high temperature; hydrogen chloride release also reported from heated solutions, and with
Firefighting Precautions	not combustible – as for substances sustaining fire; firefighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge

## **6 ACCIDENTAL RELEASE MEASURES**

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	recover free liquid with corrosion-resistant pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for disposal

## **7 STORAGE & HANDLING**

Store away from alkalis. Avoid breathing product mist. Use with adequate ventilation if a mist is generated in processing. Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

## **8 EXPOSURE CONTROL & PERSONAL PROTECTION**

ACGIH TLV	1mg/m <sup>3</sup> ( <i>soluble iron salts, as iron</i> )	ACGIH STEL	not listed
OSHA PEL	1mg/m <sup>3</sup> ( <i>soluble iron salts, as iron</i> )	OSHA STEL	not listed
Ventilation	mechanical ventilation is probably not required unless product mist is generated		
Hands	rubber, PVC, nitrile gloves – <i>other types may also protect; consult supplier to confirm suitability</i>		
Eyes	safety glasses with side shields; add a face shield if splashing is possible – <i>always protect the eyes</i>		
Clothing	wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing		

## **9 PHYSICAL CHARACTERISTICS**

**NOTE:** for Flash Point, Autoignition Temperature & Flammable Limits see Part 5.

Odor & Appearance	clear, odorless, brown liquid with a slight astringent odor of hydrogen chloride
Odor Threshold	not known – odorless
Vapor Pressure	as for water – <i>FeCl<sub>3</sub> does not volatilise</i>
Evaporation Rate ( <i>Butyl Acetate = 1</i> )	as for water – <i>FeCl<sub>3</sub> does not volatilise</i>
Vapor Density (air = 1)	0.6 – <i>water vapor only, FeCl<sub>3</sub> does not volatilise</i>
Boiling Range	120°C / 248°F
Freezing Point	-10°C / 14°F – <i>precipitate forms</i>
Decomposition Temperature	not known - <i>no decomposition below the boiling point</i>
Specific Gravity	1.42 (20/20°C)
Water Solubility	complete ( <i>solution may be diluted</i> ); 740 grams FeCl <sub>3</sub> per litre – ( <i>solubility of dry salt @ 0°C</i> )
Also soluble in	not known – probably somewhat soluble in polar solvents such as alcohols, glycols
Log P <sub>o/w</sub> (Octanol/H <sub>2</sub> O partition)	0.16
Viscosity	not known – mobile liquid
pH	2 (0.1M solution) – <i>strongly acidic</i>
Molecular Weight	162grams/mole

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## **10 REACTIVITY**

Dangerously Reactive With	potassium or sodium metal
Also Reactive With	alkalis – <i>acidic solution will neutralise alkalis</i> ; corrosive to some metals
Stability	stable; will not polymerize
Decomposes in Presence of	fire heat
Decomposition Products	chlorine gas
Sensitive to Mechanical Impact	no

## **11 TOXICITY**

### **i. EFFECTS OF ACUTE EXPOSURE**

Skin Contact	acidic solution; may cause corrosive burns
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	acidic solution; may cause corrosive burns
Inhalation	acidic solution – inhalation of product mist may cause corrosive burns to respiratory system
Ingestion	corrosive (possibly permanent) damage to mouth, throat & stomach; absorption may cause low blood pressure, rapid heartbeat & loss of consciousness – <i>not a route of industrial exposure</i>
LD <sub>50</sub> (oral)	900, 1872 & 2900mg/kg (rat), 440 & 895mg/kg (mouse)
LD <sub>50</sub> (skin)	not known – <i>probably not absorbed</i>
LC <sub>50</sub> (inhalation)	not known; <i>8hr exposure of rats to a saturated aerosol (40% FeCl<sub>3</sub>) solution caused no mortality</i>

### **ii. EFFECTS OF CHRONIC EXPOSURE**

General	delayed liver, spleen & kidney damage may occur following ingestion;
Sensitising	not a sensitiser in humans or animals; single case of human sensitisation reported
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect	reproductive effects in rodents; no known effect in humans
Mutagen	no known effect in humans or animals; negative Ames test in bacteria
Synergistic With	not known

## **12 ENVIRONMENTAL INFORMATION**

Bioaccumulation	not a bioaccumulator
Biodegradation	inorganic substance; cannot biodegrade
Abiotic Degradation	highly stable; cannot degrade abiotically; small quantities of iron salts are taken up by plants
Mobility in soil, water	water soluble; moves readily in soil and water
<b>Aquatic Toxicity</b>	
LC <sub>50</sub> (Fish, 96hr)	75.6mg/litre (Gambusia affinis), 21.8mg/litre (Pimephelas promelas), 20.3mg/litre (Lepomis macrochirus), & other data with 48hr testing
EC <sub>50</sub> (Crustacea, 48hr)	236mg/litre (Ascellus sp.), 28 & 30mg/litre (Daphnia magna), 30mg/litre (Ceriodaphnia dubia)
EC <sub>50</sub> (Crustacea, 96hr)	313-418mg/litre (Ascellus sp.), 296-424mg/litre (Crangon sp.), 9.6mg/litre (Daphnia magna), & others
EC <sub>96</sub> (Algae)	1421mg/litre (Chlorella vulgaris – 96% death)
TGK (Algae)	2.78mg/litre (Chlorella vulgaris)
(Bacteria)	<i>toxicity observed at 2.4-5.1mg/litre (Photobacterium phosphoreum)</i>

## **13 DISPOSAL / CONTAINERS**

Waste Disposal	<b>do not flush to sewer</b> , local regulations may permit disposal in sanitary landfill after suitable dilution
Containers	<b>Drums</b> should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. <b>Pails</b> must be vented and thoroughly dried prior to crushing and recycling. <b>IBCs</b> (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months.

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Replace at 60 months (5 years). Steel containers must be inspected, pressure tested & recertified every 5 years.

**Warning: never cut, drill, weld or grind on or near this container, even if empty.**

**14 TRANSPORTATION CLASSIFICATION**

**USA 49 CFR & Canada TDG**

Product Identification Number

**UN3264, Corrosive Liquid, Acidic, Inorganic, N.O.S.  
(Iron Chloride), 8 PGIII  
ferric chloride solution  
Class 8; Packing Group III  
not a marine pollutant  
2380lbs**

Shipping Name

Classification

**Marine Pollution**

Reportable Quantity (RQ)



**15 REGULATIONS**

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

**U.S.A. Regulations:**

**Allowable Tolerances:** Ferric chloride (not > 2% of suspending, dispersing agent, pesticide formulation) is exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.

**OSHA Standards:** Vacated 1989 OSHA PEL TWA 1 mg/cu m is still enforced in some states. /Iron salts (soluble, as Fe/)

**NIOSH Recommendations:** Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 1 mg/cu m. /Iron salts (soluble, as Fe/)

**Threshold Limit Values:** 8 hr Time Weighted Avg (TWA) 1 mg/cu m /Iron salts, soluble, as Fe/; Excursion Limit Recommendation: Excursions in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded. /Iron salts, soluble, as Fe/

**Federal Drinking Water Guidelines:** EPA 300 ug/L

**Clean Water Act Requirements:** Ferric chloride is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. This designation includes any isomers and hydrates, as well as any solutions and mixtures containing this substance. [REF-68]

**CERCLA Reportable Quantities:** Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 1000 lb or 454 kg. The toll free number of the NRC is (800) 424-8802; In the Washington D.C. metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3.b).

**FIFRA Requirements:** Ferric chloride (not > 2% of suspending, dispersing agent, pesticide formulation) is exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.

**FDA Requirements:** Substance added directly to human food affirmed as generally recognized as safe. Ferric chloride is an indirect food additive for use only as a component of adhesives.

**16 OTHER INFORMATION**

Date of Preparation June 2015

Date of Revision -

Prepared for BICI Chemicals, by Peter Bursztyn

**Resources:** [CHEMINFO](#) (Canadian Center for Occupational Health & Safety), [Hazardous Substances Data Bank](#) (US National Library of Science), [EChA Dossiers](#) (European Union), [ESIS European Chemical Substances Information System](#) (European Union), [OSHA Database](#) (US Dept. of Labor), and [RTECS Database](#) Registry of Toxic Effects of Chemical Substances.

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