SECTION IV

BAY AREA CHEMICAL CONSORTIUM
BID CONTRACT DOCUMENTS
FOR BID NO. 06-2023
FERRIC CHLORIDE

***** All of the following pages must be properly competed and submitted for the bid to be considered complete. *****

BAY AREA CHEMICAL CONSORTIUM
STANDARD AGREEMENT, PAGE 1 OF 2
BID NO. 06-2023
SUPPLY AND DELIVERY OF FERRIC CHLORIDE

I hereby agree to furnish FERRIC CHLORIDE identified in the attached bid forms, as solicited by the Bay Area Chemical Consortium (BACC), to one or more of the participating BACC Agencies.

Company: Kemira Water Solutions, Inc.

Address: 4321 W. 6th St.

City, State, ZIP: Lawrence, KS 66049

Phone: (785) 842-7424

Email: Kwsna.bids@kemira.com

Authorized Representative: Christina M. Imbrogno

Signature: [signature]

Date: 2/20/22

WE ACKNOWLEDGE RECEIVING ADDENDUM/ADDENDA NUMBER ~ **THROUGH** ~. None

SPECIFIC DEVIATIONS:

☐ This box must be checked if bidder has any proposed specific deviations. Per Section 2.12 Proposed Deviations from the Specifications by the Bidder, the absence of a proposed changed in the specifications will hold the bidder strictly accountable to the specifications as described in the bid document, including any addendum.

Describe the specific deviations below. A copy of the proposed specifications must be attached to this Standard Agreement at the time of submission, with bidder's name clearly shown on each document.

STANDARD AGREEMENT, PAGE 2 OF 2

BIDDER INFORMATION

1. Legal Name of Bidder:
   Kemira Water Solutions, Inc.

2. Bidder's Street Address: 4321 W. 6th St. Lawrence, KS 66049

3. Mailing Address: 4321 W. 6th St. Lawrence, KS 66049

4. Business Telephone: (785) 843-7864 Fax Number: (785) 842-2629

5. Type of Supplier:
   ☐ Sole Proprietor ☐ Partnership ☑ Corporation ☐ LLC
   If Corporation, indicate State where incorporated: Delaware

6. Business License Number issued by the City where the Supplier's principal place of business is located.
   Number: 130579-59 Issuing City: Los Angeles

7. Supplier Federal Tax Identification Number: 59-3657872

8. Emergency Contact: Name: Customer Service
   Phone Number: (800) 927-3950

9. Order Contact: Name: Customer Service
   Address: Atlanta, GA
   Phone Number: (800) 927-3950 Fax Number: (700) 436-3432
   Email: IW-customer service@Kemira.com

10. References:

Company/Agency Name	Contact Name	Phone Number
1) City of San Francisco	Evan Magante	(415) 487-5267
2) East Bay Municipal Utility District	Christopher Aman	(510) 821-1654
3) Central Marin Sanitation	Chris Finton	(415) 459-1455 x101

11. Chemical Manufacturer's name and address (if different from Bidder):
    Kemira Water Solutions, Inc.
    Mojave, CA

Non-Collusion Affidavit
To Be Executed By Bidder and Submitted With Bid

State of ~~California~~ Kansas)
) ss.
County of Douglas)

Christina M. Imbrogno, being first duly sworn, deposes and says that he or she is the
(Bidder's Authorized Representative)

Commercial Support Manager of Kemira Water Solutions, Inc the party making the
(Title of Representative) (Legal Name of Bidder)

foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bid, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct.

Signature of: President, Secretary,
Manager, Owner, or Representative

Subscribed and sworn to before me this, 20 day of February, 20 23

Brittany Ashton Jarvis
Signature of Notary Public In and For

The County of Douglas,

State of Kansas

Brittany Ashton Jarvis
Notary Public State of Kansas
My Appt Expires 12/23/2024

All Signatures Must Be Witnessed By Notary

BAY AREA CHEMICAL CONSORTIUM
BID FORM FOR BID NO. 06-2023
FOR SUPPLY AND DELIVERY OF FERRIC CHLORIDE

Sealed bids must be submitted in a PDF format and bidders must enter bid prices into the electronic bid platform (Line Item page)
https://bacwa.org/bacc/

No later than 4:00 PM. PT
Thursday, February 23, 2023

Legal Name of Bidder:
Kemira Water Solutions, Inc.

Business Address
4321 W. 6th St.
Lawrence, KS 66049

Telephone Number: (785) 842-7424
Facsimile Number: (785) 842-2629
Email Address: Kwsna.bids@kemira.com

Authorized Representative (Please Print):
Christina M. Imbrogno
Signature:
Date: 2/22/23

I. **All costs except California State sales tax for the purchase of FERRIC CHLORIDE must be included in the amount shown entered into the electronic bid platform (Line Item page), including any and all mill assessments, fees, excise taxes, transportation charges, etc. Any exceptions to the bid must be noted under Specific Deviations on the Standard Agreement. Bidders shall submit bids per unit of measure as specified in the electronic bid platform (Line Item page).**

II. **Bidders must submit all of the following, attached to this Bid Form:**
   a. All requirements listed in Section 2.21 Manufacturer's Info.
   b. If applicable, the name, address, and contact information for the third party hauling company as well as an affidavit signed by the Bidder that the third party hauler can and will deliver the chemical to each and every participating BACC Agency.

III. **Bidder Obligations**
By signing this Bid Form and entering into individual purchase orders, purchase agreements and /or contracts with BACC agencies, the bidder expressly agrees to be bound by all the provisions of the bid solicitation, including Sections I-IV.

BAY AREA CHEMICAL CONSORTIUM
Worksheet
BID NO. 06-2023
FERRIC CHLORIDE

Refer to paragraph 2.4 Bid Pricing for full details.

Bidders shall submit bids in US$ per unit of measure indicated on this bid form, FOB Destination. Bid prices shall be based on bulk deliveries of 1 ton or more. Bidders must submit their Bid Prices via electronic bid platform - Line Items section. Do not submit Worksheet.

	Unit of Measure	Bid Price per Unit of Measure
Ferric Chloride		
Central Valley	dry ton	$
City of Merced		
Oakwood Lake Water District		
East Bay	dry ton	$
Alameda County Water DistrictDublin's		
City of Hayward		
City of San Leandro		
Oro Loma Sanitary District		
Marin Sonoma Napa	dry ton	$
Central Marin Sanitation Agency		
Las Gallinas Valley Sanitary District		
Marin Municipal Water District		
Napa Sanitation District		
North Marin Water District		
Sausalito Marin City Sanitary District		
North Bay	dry ton	$
City of Pinole (Pinole/Hercules WPCP)		
Peninsula	dry ton	$
City of South San Francisco		
City of Millbrae		
City of San Mateo		
Sewer Authority Mid-Coastside		
Sacramento	dry ton	$
City of Roseville		
South Bay	dry ton	$
City of Watsonville		
San Jose - Santa Clara Regional Wastewater Facility		
Tri Valley	dry ton	$
City of Livermore		

State of Kansas
County of Douglas

Kemira Water Solutions, Inc.
Affidavit of Compliance

This is to certify that the Ferric Chloride (Kemira PIX-311) and manufactured by **Kemira Water Solutions, Inc.** meets or exceeds all specifications required by the Bay Area Chemical Consortium (BID No. 06-2023) and those specifications as established by the latest American Water Works Association standards. All products bid have been certified under ANSI/NSF Standard 60.

Deliveries will be made with Kemira trucks and dedicated trucks from Chemical Transfer.
Chemical Transfer, Stockton, CA, Mike Ellis (800) 874-7444
Our third party hauler can and will deliver Ferric Chloride to each and every participating BACC Agency.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 20 day of February, 2023.

Kemira Water Solutions, Inc.

By: _____

Name: Christina Imbrogno
Title: Commercial Support Manager

This instrument was signed and sworn to before me on 20 day of February, 2023 by Christina Imbrogno as Commercial Support Manager of Kemira Water Solutions, Inc.

Brittany Ashton Jarvis
Signature of Notary Public
Print Name: Brittany Ashton Jarvis

Attach Notarial Seal:

Brittany Ashton Jarvis
Notary Public State of Kansas
My Appt Expires 12/23/2024

My appointment expires: 12/23/2024

kemira

Where water
meets chemistry ™

Technical Data Sheet
March 2018

Certified to NSF/ANSI 60

American Water Works Association CERTIFIED

Kemira PIX-311

Ferric Chloride, 37-42% Solution

KEMIRA PIX-311 is an effective primary coagulant in liquid form based on trivalent iron (Fe^{3+}). It functions very well for both potable and wastewater clarification and can be used for color removal, arsenic removal, phosphate removal, heavy metal removal and lime softening applications. KEMIRA PIX-311 can also be used effectively for hydrogen sulfide control, struvite control and in sludge conditioning applications.

Typical properties

Appearance	Dark brown liquid
Specific Gravity (20°C/68°F)	1.39 - 1.46
$FeCl_3$	37 – 42 wt.%
Fe_{TOT}	12.7 – 14.8 wt.%
Fe (III)	12.7 – 14.5 wt.%
Fe (II)	≤ 0.3 wt.%
Free Acid (HCl)	< 1.0 wt.%
Freezing Point	-7°C / 20°F

This TDS is a general representation of the product. Detailed product specification/ analysis is available upon request.

Certification / Approval

KEMIRA PIX-311 meets or exceeds all requirements of the current AWWA Standard B407 for liquid ferric chloride and is NSF/ANSI Standard 60 certified.

Dosing

KEMIRA PIX-311 should be fed straight. No dilution or preparation is required. A diaphragm, metering pump of non-corrosive material is suitable.

Storage

KEMIRA PIX-311 is highly corrosive and contact with metal equipment must be avoided. Storage tanks and piping should be constructed of suitable material such as fiberglass, or cross- linked polyethylene. KEMIRA PIX-311 has a recommended shelf life of minimum twelve (12) months in an appropriate storage environment. With this product, inspect the storage tank yearly, clean if necessary.

Handling / Safety

The handling of any chemical requires care. Anyone responsible for using or handling KEMRIA PIX-311 should familiarize themselves with the Safety Data Sheet.

Delivery

Shipping Instructions; UN 2582, FERRIC CHLORIDE SOLUTION, 8, III, RQ, FERRIC CHLORIDE SOLUTION 37 – 42%

Kemira

1000 Parkwood Circle, Ste 500
Atlanta, GA 30339
USA
www.kemira.com

United States
Tel +1 800 879 6353

Canada
Tel +1 450 652 0665

kemira

Where water
meets chemistry ™

The Americas Quality Lab
Analytical Report

Date Reported: 2/21/2023
Sample Description: PIX-311 Ferric Chloride
Sample Date: 2/15/2023
Sample ID: 1O16230201

Parameter	Result	Unit	Method	Reporting Limit		Analyst	Date
Ferric	13.45	%	KWS QL 3311	0.05	%	JD	2/16/23
Ferric Chloride	39.07	%	KWS QL 3311	0.15	%	JD	2/16/23
Ferrous	<0.05	%	KWS QL 3312	0.05	%	MK	2/16/23
Ferrous Chloride	<0.11	%	KWS QL 3312	0.11	%	MK	2/16/23
Free Acid as HCl	0.11	%	KWS QL 3210	0.05	%	NH	2/16/23
Specific Gravity	1.418		KWS QL 3112			MK	2/16/23
Insoluble Solids	0.008	%	KWS QL 3410	0.005	%	MK	2/20/23

Certified by: Sheila St. Amour

Sheila St. Amour, Laboratory Supervisor

ACCREDITED
Certificate # 3889.01

Sample Condition upon Receipt: Intact

SAFETY DATA SHEET

KEMIRA PIX-311

Ref. /US/EN

Revision Date: 03/19/2021 Previous date: 11/06/2017 Print Date:02/17/2023

1. IDENTIFICATION

Product information

Product name
KEMIRA PIX-311

Recommended use of the chemical and restrictions on use

Use of the Substance/Mixture

Water treatment chemical
Recommended restrictions on use
Do not use for other purposes than the identified uses.

Supplier's details

Kemira Water Solutions, Inc.
1000 Parkwood Circle, Suite 500
30339 Atlanta USA
Telephone+17704361542, Telefax. +17704363432

HEAD OFFICE
Kemira Oyj
P.O. Box 330
00101 HELSINKI
FINLAND
Telephone +358108611 Telefax +358108621124

Emergency telephone number

CHEMTREC (24 Hours): 1-800-424-9300

2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals, Category 1,
Acute toxicity (Oral), Category 4, Oral,
Skin irritation, Category 2,
Serious eye damage, Category 1,

GHS-Labelling

Hazard pictograms :

Signal word: Danger

Hazard statements :

Hazard statements:

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statements :

Prevention:

P234	Keep only in original container.
P264	Wash face, hands and any exposed skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P330	Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/ doctor.
P390	Absorb spillage to prevent material damage.

Storage:

P406	Store in corrosive resistant container with a resistant inner liner.

Disposal:

P501	Dispose of contents/container as special waste in compliance with local and national regulations.

Hazard(s) not otherwise classified (HNOC) or not covered/classified by GHS

Advice; Heating above the decomposition temperature can cause formation of hydrogen chloride.
Potential environmental effects; May lower the pH of water and thus be harmful to aquatic organisms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances /Mixtures

Mixture
Chemical nature : Iron (III) chloride solution

Hazardous components

Chemical name	CAS-No.	Concentration[%]
Iron trichloride	7705-08-0	35 - 45 %
Hydrochloric acid	7647-01-0	1 - 2 %

Further information

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

4. FIRST AID MEASURES

Description of first aid measures
General advice
Show this safety data sheet to the doctor in attendance. First aider needs to protect himself.
Inhalation
Move to fresh air. Keep warm. If symptoms persist, seek medical advice.
Skin contact
Take off contaminated clothing and shoes immediately. Rinse with plenty of water. If symptoms persist, seek medical advice.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 30 minutes. Prevent rinsing water from flowing into the other eye. Continue rinsing eyes during transport to hospital.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Symptoms : Blistering, Irritation, Pain

Indication of immediate medical attention and special treatment needed, if necessary

Treatment : Symptomatic treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

None known.

Special hazards arising from the substance or mixture

Heating above the decomposition temperature can cause formation of hydrogen chloride.

Special protective actions for fire-fighters

Exposure to decomposition products may be a hazard to health. In the event of fire, wear self-contained breathing apparatus.

Further information

If possible remove containers / tanks from the dangerous area. Cool containers/tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For personal protection see section 8. Avoid contact with skin, eyes and clothing.

Environmental precautions

Prevent product from entering the environment. Restrict the spread of the spillage by using inert absorbent material (sand, gravel). Cover the drains. Must be disposed of in accordance with local and national regulations. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up

Clean-up methods - small spillage

Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up. Must be disposed of in accordance with local and national regulations.

Clean-up methods - large spillage

Remove spill using a vacuum truck. Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up remaining material. Must be disposed of in accordance with local and national regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. For personal protection see section 8. The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized. Keep away from incompatible materials. Contact with certain metals, e.g. aluminium and zinc, may form hydrogen gas, which in turn may form explosive mixtures of gases with air.

Conditions for safe storage, including any incompatibilities

Keep away from incompatible materials. Ensure adequate ventilation.
For quality reasons: Keep at temperatures above 0 °C. Keep at temperatures below 30 °C.

Materials for packaging

Suitable material: plastic (PE, PP, PVC), fiberglass-reinforced polyester, rubber-coated steel
Unsuitable material: Avoid contact with unalloyed steel or galvanized surfaces., stainless steel (AISI 304), materials not resistant to acid, Copper, Aluminium, Iron, Zinc, brass, titanium

Materials to avoid:

Metals, Bases, Alkaline materials, Oxidizing agents, Reducing agents, sulphites, Sulphides

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Components	CAS-No.	Value	Form of exposure	Control parameters	Update	Basis
Hydrochloric acid	7647-01-0	C		2 ppm	2007-01-01	ACGIH
		C		5 ppm 7 mg/m³	2013-10-08	NIOSH REL
		C		5 ppm 7 mg/m³	2006-02-28	OSHA Z-1
		C		5 ppm 7 mg/m³	1989-01-19	OSHA P0

		PEL		0.3 ppm 0.45 mg/m³	2014-11-26	CAL PEL
		C		2 ppm	2014-11-26	CAL PEL
Iron trichloride	7705-08-0	TWA		1 mg/m³	2019-03-05	ACGIH
		TWA		1 mg/m³	1989-01-19	OSHA P0
		TWA		1 mg/m³	2013-10-08	NIOSH REL

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Eye wash bottle or emergency eye-wash fountain must be found in the work place. Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment
Industrial Hygiene

Respiratory protection

Respiratory protection is not required under normal handling conditions. Use the indicated respiratory protection if the occupational exposure limit is exceeded. (filter B-P2)

Hand protection

Glove material: PVC and neoprene gloves, Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Protective gloves complying with EN 374.

Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.

Skin and body protection

Wear protective clothing if necessary. Use rubber boots.

Eye protection

Tightly fitting safety goggles. Eye wash bottle with pure water .

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid
Colour	dark brown
Odour	slightly acidic
Odour Threshold	No data available
pH	< 1 (68 °F / 20 °C) Concentration: 100 %
Freezing point/Melting point :	-20 °C
Initial boiling point and boiling range	Boiling point/boiling range 100 - 109 °C
Flash point	Not applicable, inorganic compound In accordance with column 2 of REACH Annex VII, the study does not need to be conducted.
Evaporation rate	No data available
Flammability (solid, gas)	Not applicable
Explosive properties:	
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Oxidizing properties	Not oxidizing
Vapour pressure	similar to water
Relative vapour density	No data available
Density	1.39 - 1.45 g/cm³
Relative density	No data available
Solubility(ies):	
Water solubility	(20 °C) completely soluble, At dilution to less than 1% of FeCl3, precipitation of iron hydroxide occurs.
Partition coefficient: n-octanol/water	Not applicable, inorganic compound
Auto-ignition temperature	not auto-flammable
Decomposition temperature	> 100 °C

Viscosity:

Viscosity, dynamic	5 - 15 mPa.s (20 °C)
Viscosity, kinematic	
Volatile organic content (VOC)	Not applicable
Surface tension	No data available

10. STABILITY AND REACTIVITY

Reactivity

Corrosive to metals.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Bases cause exothermic reactions.
Contact with certain metals may form hydrogen gas, which in turn may form explosive mixtures of gases with air.

Conditions to avoid

Avoid freezing.
Avoid storage at high temperatures.

Incompatible materials

Metals
Bases
Alkaline materials
Oxidizing agents
Reducing agents
sulphites
Sulphides

Hazardous decomposition products

Heating above the decomposition temperature can cause formation of hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute oral toxicity	Acute toxicity estimate/approximately/1,000 - 1,700 mg/kg Conclusion: Harmful if swallowed.
Acute oral toxicity	**Iron trichloride:** LD50/Rat/220 mg/kg/OECD Test Guideline 423 Remarks: Calculated as Fe
Acute inhalation toxicity	**Iron trichloride:** No observed adverse effect level/1.1 mg/l/EPA OPP 81-3
Acute dermal toxicity	**Iron trichloride:** LD50/Rat/>/2,000 mg/kg/OECD Test Guideline 402 Remarks: Read-across (Analogy), CAS-No., 7758-94-3
	Iron trichloride: LD50/Rat/>/881 mg/kg/OECD Test Guideline 402 Remarks: Calculated as Fe
Skin corrosion/irritation	
	Conclusion: May cause skin irritation.
Skin corrosion/irritation	**Iron trichloride:**Rabbit Result: irritating /OECD Test Guideline 404/ferrous sulfate heptahydrate
	Conclusion: Moistened solid is expected to be irritant as a consequence of low pH.
Serious eye damage/eye irritation	Conclusion: Causes serious eye damage.
Serious eye damage/eye irritation	**Iron trichloride:** Rabbit Result: Causes serious eye damage./OECD Test Guideline 405 Remarks: Read-across (Analogy), 7758-94-3, dry substance
Respiratory or skin sensitisation	
Skin sensitisation	
	Conclusion: Contains, Nickel dichloride, May cause allergic skin reaction.
Skin sensitisation	**Iron trichloride:** Local lymph node assay (LLNA)/Mouse Result: Not sensitizing./OECD Test Guideline 429/ferrous sulfate
Germ cell mutagenicity	
Genotoxicity in vitro	
	Remarks: Based on available data, the classification criteria are not met.

Genotoxicity in vitro	**Iron trichloride:** Ames test/Salmonella typhimurium/with and without Result: negative OECD Test Guideline 471/ferric chloride

Carcinogenicity

Carcinogenicity	Remarks: Based on available data, the classification criteria are not met.
Carcinogenicity	**Iron trichloride:** /Rat/Oral/2 years/No observed adverse effect level/>/0.5/%/ferric chloride Not believed to be a carcinogen.

Reproductive toxicity

Toxicity for reproduction	Remarks: Based on available data, the classification criteria are not met.
Toxicity for reproduction	**Iron trichloride:** Reproductive effects/Rat/Oral/>/500 mg/kg/ferrous chloride/OECD Test Guideline 422
Teratogenicity	**Iron trichloride:** Rat/Oral/>/1,000 mg/kg/OECD Test Guideline 422/ferrous sulfate heptahydrate Conclusion: Did not show teratogenic effects in animal experiments.
Specific target organ toxicity - single exposure	Remarks:Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Remarks:Based on available data, the classification criteria are not met.

Aspiration hazard

Aspiration toxicity	No aspiration toxicity classification

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic toxicity

LC50/48 h/Pimephales promelas (fathead minnow)/Acute Fish toxicity/US EPA-821-R-02-012: >= 686 mg/l

LC50/48 h/Ceriodaphnia dubia (Water flea)/Short-term (acute) aquatic hazard/US EPA-821-R-02-012: >= 137 mg/l

Iron trichloride:
LC50/96 h/Lepomis macrochirus (Bluegill sunfish): 59 mg/l
Remarks: hydrated substance
NOEC/96 h/Lepomis macrochirus (Bluegill sunfish): > 1 mg/l
Remarks: hydrated substance
EC50/48 h/Daphnia magna (Water flea): 27 mg/l
NOEC/21 d/Daphnia magna (Water flea): > 1 mg/l
EC50/15 d/algae/rate of growth: 58 mg/l
Remarks: Test is not appropriate due to the flocculating characteristics of the product.,The compound is considered to have no long term effects in aquatic systems due to the rapid formation of insoluble hydroxides.

Toxicity to other organisms

Iron trichloride:
Remarks: No data available

Persistence and degradability

Biological degradability:

The methods for determining the biological degradability are not applicable to inorganic substances.

Biological degradability:
Iron trichloride:
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Iron trichloride:
Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Mobility in soil

Vapour pressure: 0.023 (20 °C)
Water solubility: completely soluble (20 °C)
Surface tension: No data available

Iron trichloride:

Other adverse effects

May lower the pH of water and thus be harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Product	Must be disposed of in accordance with local and national regulations.
Contaminated packaging	Classified as hazardous waste. Must be disposed of in accordance with local and national regulations.

14. TRANSPORT INFORMATION

UN number	2582
Land transport	
DOT:	
Description of the goods:	UN2582, FERRIC CHLORIDE SOLUTION
Proper shipping name	
Class:	8
Packaging group:	III
DOT-Labels	8
Reportable quantity	Ferric chloride
Sea transport	
IMDG:	
Description of the goods:	
UN proper shipping name	UN2582, FERRIC CHLORIDE SOLUTION
Class:	8
Packaging group:	III
IMDG-Labels:	8
Environmentally Hazardous	Not a Marine Pollutant
Air transport	
ICAO/IATA:	
Description of the goods:	
UN proper shipping name	UN2582, Ferric chloride solution
Class:	8
Packaging group:	III
ICAO-Labels:	8

Special precautions for user

None known.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Title III Section 311 Categories

Corrosive to metals, Category 1,
Acute toxicity (Oral), Category 4, Oral
Skin irritation, Category 2,
Serious eye damage, Category 1,

SARA 313 - Specific Toxic Chemical Listings

Chemical name	CAS-No.	Concentration[%]
Hydrochloric acid	7647-01-0	

OSHA A. United States Occupational Safety and Health Administration Substances, 29 CFR 1910.1000, sub Part Z. B. National Institute for Occupational Safety and Health (NIOSH) 'Occupational Health Guidelines for Chemical Hazards' Substances.

CERCLA Hazardous substance (Reportable Quantities)

CERCLA Hazardous substance (Reportable Quantities)

Chemical name	CAS-No.	Reportable quantity
Iron trichloride	7705-08-0	1,000 lb

Chemical name	CAS-No.	Reportable quantity
Iron dichloride	7758-94-3	100 lb

Hydrochloric acid (7647-01-0)

Iron trichloride (7705-08-0)

California Proposition 65

WARNING: This product contains a chemical(s) known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Nickel dichloride (7718-54-9) < 100 PPM

Other regulations : No restrictions identified other than those already covered in regulations.

Notification status

USA : All components of this product are included in the United

		States TSCA Chemical Inventory with Active Status or are not required to be listed on the United States TSCA Chemical Inventory.
Canada	:	All components of this product are included in the Canada Domestic Substance List (DSL) or are not required to be listed on the Canada Domestic Substance List (DSL).
Australia	:	All components of this product are included in the Australian Inventory of Industrial Chemicals (AIIC) or are not required to be listed on the Australian Inventory of Industrial Chemicals (AIIC).
China	:	All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
South Korea	:	All components of this product are included in the Korean (ECL) inventory or are not required to be listed on the Korean (ECL) inventory.
Philippines	:	All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine (PICCS) inventory.
Japan	:	All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese (ENCS) inventory.
European Union	:	All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.
New Zealand	:	All components of this product are included in the New Zealand inventory (NZIoC) or are not required to be listed on the New Zealand inventory(NZIoC).
	:	This product's Taiwan Toxic Chemical Substances Control Act Inventory status has NOT been determined.

16. OTHER INFORMATION

HMIS Rating

Health: 3
Flammability: 0
Reactivity: 1

NFPA Rating

Health: 3
Fire: 0
Reactivity: 1

Training advice

Read the safety data sheet before using the product.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
This SDS is prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI SDS Standard (Z400.1) by Kemira.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Sources of key data used to compile the Safety Data Sheet

Regulations, databases, literature, own tests.

Revision Date: 03/19/2021

The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Friday, February 17, 2023** at 12:15 a.m. Eastern Time. Please contact NSF to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information:
http://info.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=kemira+water&TradeName=pix%2D311&

NSF/ANSI/CAN 60
Drinking Water Treatment Chemicals - Health Effects

Kemira Water Solutions, Inc.
1000 Parkwood Circle
Suite 500
Atlanta, GA 30334
United States
888-KEMIRON
863-533-5990
Visit this company's website (http://www.kemira.com)

Facility : Distribution Center- Mulga, AL

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - Buckeye, AZ

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - Fremont, CA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

Facility : Fontana, CA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Mojave, CA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	300mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : East Chicago, IN

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Baltimore, MD

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - North Billerica, MA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : St. Louis, MO

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Albuquerque, NM

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

Facility : Distribution Center - Buffalo, NY

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

Facility : Distribution Center - Euclid, OH

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - El Paso, TX

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - Waxahachie, TX

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Kalama, WA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Spokane, WA

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Facility : Distribution Center - Winnipeg, Manitoba, Canada

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.
NOTE: Only products bearing the NSF Mark are Certified.

Facility : Varennes, Quebec, Canada

Ferric Chloride

Trade Designation	*Product Function*	*Max Use*
KEMIRA PIX-311	Coagulation & Flocculation	250mg/L

NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

Number of matching Manufacturers is 1

Number of matching Products is 18

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