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. 06-2025) 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 17 day of February, 2025.

Kemira Water Solutions, Inc.

By: _____

Name: Christina Imbrogno
Title: Commercial Support Manager

This instrument was signed and sworn to before me on 17 day of February, 2025 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 12/23/2028

My appointment expires: _____

KEMIRA PIX-311

37 - 42% Fe Chloride Solution

KEMIRA PIX-311

KEMIRA PIX-311 is an effective primary coagulant in liquid form based on trivalent iron (Fe^{3+}). It functions very well for process 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 effectively be used for hydrogen sulfide control, struvite control and in sludge conditioning applications.

Certification / Approval

KEMIRA PIX-311 meets or exceeds all the requirements of the current AWWA Standard B407 and is NSF/ANSI Standard 60 certified for use in potable water treatment.

Product Typical Properties

Appearance	Dark brown liquid
Specific Gravity	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	-20°C / -4°F

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

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-311is highly corrosive and contact with metal equipment should 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 twelve (12) months in an appropriate storage environment. With this product the storage tank should be inspected yearly and cleaned if necessary.

Handling / Safety

The handling of any chemical requires care. Anyone responsible for using or handling of KEMIRA PIX-311 should familiarize themselves with the full saftey precautions outlined in our Safety Data Sheet.

Delivery

Shipping Instructions; Corrosive Liquid, Acidic, Inorganic, n.o.s., 8, UN 2582, P.G. III.

KEMIRA OYJ

P.O.Box 330 (Energiakatu 4)
FI-00101 Helsinki
Finland

www.kemira.com

Europe, Middle-East and Africa
Tel +358 10 8611

Asia-Pacific
Tel +86 21 6037 5999

Americas
North America
Tel +1 770 436 1542

South America
Tel +55 11 2189 4900

SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

kemira

KEMIRA PIX-311

Version	Revision Date:	Date of last issue: 07/03/2024
1.9	07/03/2024	Date of first issue: 02/20/2015

SECTION 1. IDENTIFICATION

Product name : **KEMIRA PIX-311**

Manufacturer or supplier's details

Company name of supplier	:	Kemira Water Solutions, Inc.
Address	:	200 Galleria Parkway, Suite 1500 Atlanta GA 30339-5979
Telephone	:	(770) 436-1542
Telefax	:	(770) 436-3432
E-mail address of person responsible for the SDS	:	us-customerservice@kemira.com
Emergency telephone number	:	CHEMTREC (24 Hours): 1-800-424-9300

Recommended use of the chemical and restrictions on use

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

GHS label elements

Hazard pictograms :

Signal word : Danger

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 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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.

Other hazards

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
Chemical nature : Iron (III) chloride solution

Components

Chemical name	CAS-No.	Concentration (% w/w)
Iron trichloride	7705-08-0	> 35 - < 45
Hydrochloric acid	7647-01-0	<= 2

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.

If inhaled : Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position.
If symptoms persist, seek medical advice.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water for at least 15 minutes.
If skin irritation persists, call a physician.

In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

		In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. Rinse immediately with plenty of water, also under the eyelids. Prevent rinsing water from flowing into the other eye. Remove contact lenses, if present and easy to do. Continue rinsing. Continue rinsing eyes during transport to hospital.
If swallowed	:	If swallowed, DO NOT induce vomiting. Rinse mouth with water. Get medical advice/ attention if you feel unwell.
Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. Causes serious eye damage. Causes skin irritation. Effects are immediate or delayed. Symptoms may include: Central nervous system depression Headache Nausea Dizziness Blistering Irritation Burn Pain Redness Rash
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing
Notes to physician	:	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Not combustible. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	No special requirements.
Specific hazards during fire-fighting	:	Heating above the decomposition temperature can cause formation of hydrogen chloride.
Further information	:	If possible remove containers / tanks from the dangerous area. Cool containers/tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Exposure to decomposition products may be a hazard to health. In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Keep unnecessary and unprotected personnel from entering the involved area. Ensure adequate ventilation. Wear respiratory protection. Use personal protective equipment. Wear suitable protective clothing, gloves and eye/face protection.
Environmental precautions	:	Do not allow uncontrolled discharge of product into the environment.
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.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Handle in accordance with good industrial hygiene and safety practice. The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Wear suitable gloves and eye/face protection. Keep away from incompatible materials. May be corrosive to metals. Bases Strong oxidizing agents
Conditions for safe storage	:	Keep away from incompatible materials. Ensure adequate ventilation. For quality reasons: Keep at temperatures above 0 °C. Keep at temperatures below 30 °C.
Materials to avoid	:	Metals Bases Strong acids Oxidizing agents

Reducing agents
Sulphides
sulphites

Packaging material : 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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Iron trichloride	7705-08-0	TWA	1 mg/m3 (Iron)	ACGIH
		TWA	1 mg/m3 (Iron)	OSHA P0
		TWA	1 mg/m3 (Iron)	NIOSH REL
Hydrochloric acid	7647-01-0	C	2 ppm	ACGIH
		C	5 ppm 7 mg/m3	NIOSH REL
		C	5 ppm 7 mg/m3	OSHA Z-1
		C	5 ppm 7 mg/m3	OSHA P0

Engineering measures : Ensure adequate ventilation.

Personal protective equipment

Respiratory protection : Respiratory protection is not required under normal handling conditions.

Hand protection

Remarks : Protective gloves and Chemical resistant gloves.

Eye protection : Wear eye protection/ face protection.
Tightly fitting safety goggles or face-shield.

Skin and body protection : Wear protective clothing if necessary.
Use rubber boots.
face shield

Protective measures : Ensure adequate ventilation, especially in confined areas.
Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9. 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	:	-4 °F / -20 °C
Melting point		No data available
Boiling point/boiling range	:	212 - 228 °F / 100 - 109 °C
Flash point	:	Not applicable inorganic compound
Flammability (liquids)	:	Not flammable
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	23 hPa (68 °F / 20 °C)
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.38 - 1.50 g/cm3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	miscible, At dilution to less than 1% of FeCl3, precipitation of iron hydroxide occurs. (68 °F / 20 °C)
Partition coefficient: n-octanol/water	:	Not applicable inorganic compound
Auto-ignition temperature	:	not auto-flammable
Decomposition temperature	:	572 °F / 300 °C
Viscosity		
Viscosity, dynamic	:	5 - 15 mPa.s (68 °F / 20 °C)
Viscosity, kinematic	:	not determined
Oxidizing properties	:	Not oxidizing
Surface tension	:	No data available
Particle characteristics		

Assessment	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Corrosive to metals.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Contact with certain metals may form hydrogen gas, which in turn may form explosive mixtures of gases with air. Reacts with the following substances: Strong acids and strong bases Strong oxidizing agents
Conditions to avoid	:	Avoid extreme temperatures. Do not freeze. Avoid storage at high temperatures.
Incompatible materials	:	Metals Bases Strong acids Oxidizing agents Reducing agents Sulphides sulphites
Hazardous decomposition products	:	Heating above the decomposition temperature can cause formation of hydrogen chloride.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity	:	Acute toxicity estimate: approximately 1,000 - 1,700 mg/kg Remarks: Harmful if swallowed.

Components:

Iron trichloride:

Acute oral toxicity	:	LD50 (Rat): 220 mg/kg Method: OECD Test Guideline 423 Remarks: Calculated as Fe Acute toxicity estimate: 500 mg/kg
Acute inhalation toxicity	:	No observed adverse effect level: 1.1 mg/l Method: EPA OPP 81-3
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 402 Remarks: Read-across (Analogy)

CAS-No.
7758-94-3

LD50 (Rat): > 881 mg/kg
Method: OECD Test Guideline 402
Remarks: Calculated as Fe

Hydrochloric acid:

Acute inhalation toxicity : LC50 (Rat): 4701 ppm
Exposure time: 30 min
Test atmosphere: gas
Remarks: gas

LC50 (Rat): 8.3 mg/l
Exposure time: 30 min
Test atmosphere: aerosol
Remarks: aerosol

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Causes skin irritation.

Product:

Remarks : Causes skin irritation.

Components:

Iron trichloride:

Species : Rabbit
Method : OECD Test Guideline 404
Result : irritating
GLP : yes
Test substance : ferrous sulfate heptahydrate

Hydrochloric acid:

Species : EPISKIN Human Skin Model Test
Exposure time : 1 h
Method : OECD Test Guideline 431
Result : Corrosive
GLP : yes

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks : Causes serious eye damage.

Components:

Iron trichloride:

Species	:	Rabbit
Result	:	Causes serious eye damage.
Method	:	OECD Test Guideline 405
GLP	:	yes
Remarks	:	Read-across (Analogy) 7758-94-3 dry substance

Hydrochloric acid:

Species	:	Rabbit
Result	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405
Test substance	:	yes
Remarks	:	0,1 ml, conc. 10 %

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Product:

Remarks	:	contains Nickel dichloride May cause an allergic skin reaction.

Components:

Iron trichloride:

Test Type	:	Local lymph node assay (LLNA)
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Not sensitizing.
Test substance	:	ferrous sulfate

Hydrochloric acid:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Result	:	Not sensitizing.

Germ cell mutagenicity

Not classified due to lack of data.

Product:

Genotoxicity in vitro : Remarks: Based on available data, the classification criteria are not met.

Components:

Iron trichloride:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without
Method: OECD Test Guideline 471
Result: negative
Test substance: ferric chloride

Hydrochloric acid:

Genotoxicity in vitro : Test Type: In vitro mitotic recombination
Test system: Saccharomyces cerevisiae
Metabolic activation: with and without
Result: negative

Carcinogenicity

Not classified due to lack of data.

Product:

Remarks : Based on available data, the classification criteria are not met.

Components:

Iron trichloride:

Species	:	Rat
Application Route	:	Oral
Exposure time	:	2 years
NOAEL	:	> 0.5 %
Test substance	:	ferric chloride

Hydrochloric acid:

Species	:	Rat
Application Route	:	Inhalation
	:	15 mg/m³
Method	:	OECD Test Guideline 451

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified due to lack of data.

Product:

Effects on fertility	:	Remarks: Based on available data, the classification criteria are not met.

Components:

Iron trichloride:

Effects on fertility	:	Test Type: Reproductive effects Species: Rat Application Route: Oral General Toxicity - Parent: NOAEL: > 500 mg/kg body weight Method: OECD Test Guideline 422
Effects on foetal development	:	Species: Rat Application Route: Oral Teratogenicity: NOAEL: > 1,000 mg/kg body weight Method: OECD Test Guideline 422 Result: Did not show teratogenic effects in animal experiments.

Hydrochloric acid:

Effects on fertility	:	Remarks: No data available
Effects on foetal development	:	Remarks: No data available

STOT - single exposure
Not classified due to lack of data.

Product:

Remarks	:	Based on available data, the classification criteria are not met.

Components:

Iron trichloride:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.

Hydrochloric acid:

Assessment	:	May cause respiratory irritation.

STOT - repeated exposure
Not classified due to lack of data.

Product:

Remarks : Based on available data, the classification criteria are not met.

Components:

Iron trichloride:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Hydrochloric acid:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity

Based on available data, the classification criteria are not met.

Product:

No aspiration toxicity classification

Components:

Iron trichloride:

No aspiration toxicity classification

Hydrochloric acid:

No aspiration toxicity classification

Experience with human exposure

Product:

Inhalation : Remarks: Effects are immediate and delayed.
Inhalation may provoke the following symptoms:
No symptoms known or expected.
Remarks: Chronic Symptoms:
None known.

Skin contact : Remarks: Effects are immediate and delayed.
Skin contact may provoke the following symptoms:
Skin irritation
skin rash
Remarks: Chronic Symptoms:
None known.

Eye contact : Remarks: Effects are immediate and delayed.
Corrosive to eyes and may cause severe damage including blindness.
Remarks: Chronic Symptoms:
None known.

Ingestion : Remarks: Effects are immediate and delayed.
Ingestion may provoke the following symptoms:
Harmful by ingestion.

Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.
Gastrointestinal discomfort
Remarks: Chronic Symptoms:
None known.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): >= 686 mg/l
Exposure time: 48 h
Test Type: Acute Fish toxicity
Test substance: similar product
Method: US EPA-821-R-02-012

Toxicity to daphnia and other aquatic invertebrates : LC50 (Ceriodaphnia dubia (Water flea)): >= 137 mg/l
Exposure time: 48 h
Test Type: Short-term (acute) aquatic hazard
Test substance: similar product
Method: US EPA-821-R-02-012

Components:

Iron trichloride:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 59 mg/l
Exposure time: 96 h
Remarks: hydrated substance

NOEC (Lepomis macrochirus (Bluegill sunfish)): > 1 mg/l
Exposure time: 96 h
Remarks: hydrated substance

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 27 mg/l
Exposure time: 48 h

NOEC (Daphnia magna (Water flea)): > 1 mg/l
Exposure time: 21 d

Toxicity to algae/aquatic plants : EC50 (algae): 58 mg/l
Exposure time: 15 d
Test Type: rate of growth
GLP: no
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 terrestrial organisms	:	Remarks: No data available

Hydrochloric acid:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 20.5 mg/l Exposure time: 96 h Test Type: semi-static test GLP: no Remarks: fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.45 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Chlorella vulgaris (Fresh water algae)): 0.73 mg/l Test Type: static test Method: OECD Test Guideline 201 Remarks: Fresh water

Persistence and degradability

Product:

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

Components:

Iron trichloride:

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

Hydrochloric acid:

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

Bioaccumulative potential

Components:

Iron trichloride:

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

Hydrochloric acid:

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

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	May lower the pH of water and thus be harmful to aquatic organisms.

Components:

Iron trichloride:

Results of PBT and vPvB assessment	:	No information available.

Hydrochloric acid:

Results of PBT and vPvB assessment	:	This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic) This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in compliance with local and national regulations.
Contaminated packaging	:	Must be disposed of in accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

UN/ID No.	:	UN 2582
Proper shipping name	:	Ferric chloride solution (Ferric chloride)
Class	:	8
Packing group	:	III
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	856

IMDG-Code

UN number	:	UN 2582
Proper shipping name	:	FERRIC CHLORIDE SOLUTION (Ferric chloride)
Class	:	8
Packing group	:	III
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	UN 2582
Proper shipping name	:	Ferric chloride, solution
Class	:	8
Packing group	:	III
Labels	:	CORROSIVE
ERG Code	:	154
Marine pollutant	:	no

Special precautions for user

Remarks	:	Corrosive in contact with metals, Metal containers must be lined.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Iron trichloride	7705-08-0	1000	2479

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Corrosive to metals
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Skin corrosion or irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Iron trichloride	7705-08-0	>= 30 - < 50 %
Hydrochloric acid	7647-01-0	>= 0.1 - < 1 %
Iron dichloride	7758-94-3	>= 0.1 - < 1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Iron trichloride	7705-08-0	>= 30 - < 50 %
Hydrochloric acid	7647-01-0	>= 0.1 - < 1 %
Iron dichloride	7758-94-3	>= 0.1 - < 1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

California Prop. 65

WARNING: This product can expose you to chemicals including iron bis(arsenate), Cadmium chloride, Nickel dichloride, lead dichloride, which is/are known to the State of California to cause cancer, and
mercury dichloride, Nickel dichloride, lead dichloride, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA : 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.

DSL : 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).

AIIC : 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).

IECSC : All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

KECI	:	All components of this product are included in the Korean (ECL) inventory or are not required to be listed on the Korean (ECL) inventory.
PICCS	:	All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine (PICCS) inventory.
ENCS	:	All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese (ENCS) inventory.
EINECS	:	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.
NZIoC	:	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).
TCSI	:	This product's Taiwan Toxic Chemical Substances Control Act Inventory status has NOT been determined.

TSCA list

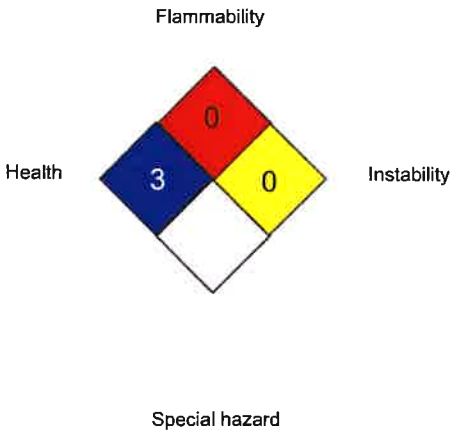
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits

OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / C	:	Ceiling limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / C	:	Ceiling limit
OSHA Z-1 / C	:	Ceiling

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Relevant changes have been marked with vertical lines.
This Safety Data Sheet is prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200), an adoption of the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 3 by Kemira.

Sources of key data used to : Regulations, databases, literature, own tests.

compile the Safety Data Sheet
Revision Date : 07/03/2024

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.

US / EN

kemira
Where water
meets chemistry ™

The Americas Quality Lab
Analytical Report

To: Tina Imbrogno
Tina.Imbrogno@kemira.com
Date Reported: 1/30/2025
Sample Description: PIX-311 Ferric Chloride
Sample Date: 12/4/2024
Sample ID: 1624 02 0049

Parameter	Result	Unit	Method	Reporting Limit		Analyst	Date
Ferric	14.14	%	KWS QL 3311	0.05	%	SB	1/2/25
Ferric Chloride	41.08	%	KWS QL 3311	0.15	%	SB	1/2/25
Ferrous	0.06	%	KWS QL 3312	0.05	%	CB	1/10/25
Ferrous Chloride	0.14	%	KWS QL 3312	0.11	%	CB	1/10/25
Free Acid as HCl	0.07	%	KWS QL 3210	0.05	%	SB	1/14/25
Specific Gravity	1.441		KWS QL 3113			NH	1/28/25
Insoluble Solids	<0.005	%	KWS QL 3410	0.005	%	SB	1/28/25
Sulfur as Sulfate	0.019	%	KWS QL 3513	0.001	%	SS	1/8/25

Certified by: Sheila St. Amour
Sheila St. Amour, Laboratory Supervisor

ACCREDITED
Certificate # 3889.01

Sample Condition upon Receipt: Intact

The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Monday, February 17, 2025** 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 - 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 : 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 : 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: Only products bearing the NSF Mark are Certified.
NOTE: Four digit alpha suffix in Certified trade names on product labels and/or literature may be used to designate container size.

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 15

Processing time was 1 seconds