



# Mid-Michigan Water Chemical Consortium 2022-2023

## PVS Technologies, Inc.

### Supplier Response

#### Event Information

Number: Mid-Michigan Water Chemical Consortium 2022-2023  
Title: 2022040622  
Type: Request for Proposal- Sealed  
Issue Date: 4/6/2022  
Deadline: 4/15/2022 02:00 PM (ET)  
Notes: Notice to Bidders:

Sealed Proposals in response to this Request for Proposal (“RFP”) will be received by the Board of Water and Light (“BWL”)for Mid-Michigan Water Chemical Consortium 2022-2023.

Proposals must be in full accordance with the enclosed Scope of Work.

Proposals must be submitted through IonWave. Proposals received via e-mail will not be accepted.

The BWL reserves the right to reject any or all Proposals, waive irregularities or technicalities in any Proposal, and accept any Proposal in whole or in part, which in the opinion of the BWL, is in its best interest. The BWL does not limit the methods or factors to be used for evaluation.

#### Contact Information

Contact: Rachelle Hall  
Address: 1110 South Pennsylvania Ave.

Email: Lansing, MI 48912  
rachelle.hall@lbwl.com

## PVS Technologies, Inc. Information

Contact: Eileen McDonnell / Shauna Barthel  
Address: 10900 Harper Avenue  
Detroit, MI 48213  
Phone: (313) 921-1200  
Email: bids@pvschemicals.com

By submitting your response, you certify that you are authorized to represent and bind your company.

Craig Mikkelson  
*Signature*

bids@pvschemicals.com  
*Email*

Submitted at 4/14/2022 2:32:05 PM

## Requested Attachments

### Exceptions to Terms and Conditions (if applicable)

*No response*

**Sworn and Notarized Affidavit of Compliance** Sworn\_and\_Notarized\_Affidavit\_of\_Compliance\_-\_Iran\_Economic\_Sanctions\_Act\_Revised\_May\_2018.pdf

**Other Attachment** Corp. Resolution, Insurance, DWG, SDS, NSF.pdf

## Bid Attributes

1	<b>Company Contact</b> Please provide the primary contact's name, e-mail, and phone number for this proposal. Sara Gentile - SGentile@pvschemicals.com
2	<b>How many years has your firm been in business under the present ownership?</b> 36 years
3	<b>Have you done business with the Board of Water and Light? If so, furnish specifics.</b> Yes-Supply of Liquid Ferric Chloride
4	<b>Have you done business with the City of Lansing? If so, furnish specifics.</b> Yes-Supply of Liquid Ferric Chloride
5	<b>Have you ever defaulted on a contract or been involved in litigation with the BWL or the City of Lansing? If so, furnish specifics.</b> NO
6	<b>Have you ever defaulted on a contract or been involved in litigation with any other client in the past five years? If so, furnish specifics.</b> NO
7	<b>List any relationships between your firm's staff and any current BWL employee.</b> NONE

<b>8</b>	<b>List at least three (3) references for similar work you have performed for other clients. Include client's name, contact name, title and phone number.</b>
	<div style="border: 1px solid black; padding: 5px;"> City of Elyria, Ohio/Kelly Verday, Safety Service Director's Office/Phone: 440-326-1400 ext. 1422  Oakland County, Michigan/Edward J. Tucker Buyer/Phone: 248-858-1064  Saginaw Charter Township WWTP, Michigan/Lee Keyser Superintendent/Phone 989-274-6205 </div>

<b>9</b>	<b>List subcontractors that you plan to use on this project.</b>
	<div style="border: 1px solid black; padding: 5px;">NONE</div>

<b>10</b>	<b>Indicate any exceptions to the enclosed Terms and Conditions</b>
	If YES, Contractor must provide red-lined editing on the BWL Terms and Conditions Microsoft Word document only. Any submission of, or general references to Contractor Terms and Conditions in its entirety anywhere within the proposal will invalidate the proposal.
	<div style="border: 1px solid black; padding: 5px;">No</div>

<b>11</b>	<b>Acknowledgment of receipt of any Addendas issued.</b>
	<div style="border: 1px solid black; padding: 5px;">No</div>

<b>12</b>	<b>Confirm you have reviewed all attachments included in this solicitation.</b>
	<input checked="" type="checkbox"/> Yes (Yes)

<b>13</b>	<b>Product meets quality specifications in the Scope of Work?</b>
	<div style="border: 1px solid black; padding: 5px;">Yes</div>

<b>14</b>	<b>Able to meet delivery requirements for each municipality in the Scope of Work?</b>
	Including but not limited to delivery days of week, hours, load size, unloading requirements.
	<div style="border: 1px solid black; padding: 5px;">Yes</div>

<b>15</b>	<b>I have read and agreed.</b>
	<p>The Bidder states that this proposal is made in conformity with the Proposal Documents and agrees that, in the event of any discrepancies or differences between any conditions of their proposal and the Proposal Documents provided in the Instructions to Bidders and completed by the bidder, the provisions of the latter shall prevail. No verbal or written agreements or understandings considered or entered into prior to signing of a contract in the form of a purchase order, shall be binding after the signing of the contract unless incorporated in the contract.</p> <p>The Bidder certifies that this proposal is made in good faith, upon the best information, with knowledge and accuracy, and without collusion or connection with any other person or persons submitting proposals for the work.</p>
	<input checked="" type="checkbox"/> I have read and agreed (I have read and agreed)

**Bid Lines**

<b>1</b>	Sodium Hypochlorite (per gallon)	<b>No Bid</b>
	Quantity: <u>  1  </u> UOM: <u>  GAL  </u>	
<b>2</b>	Sodium Hypochlorite Demurrage (first 4 hours free)	<b>No Bid</b>
	Quantity: <u>  1  </u> UOM: <u>  HR  </u>	

3	Hydrofluosilic Acid- 40,000 lbs. minimum shipments Quantity: <u>  1  </u> UOM: <u>  ton  </u>			<b>No Bid</b>
4	Hydrofluosilic Acid- 30,000 lbs. minimum shipments Quantity: <u>  1  </u> UOM: <u>  ton  </u>			<b>No Bid</b>
5	Hydrofluosilic Acid- multiple locations in 40,000 lbs. minimum shipments Quantity: <u>  1  </u> UOM: <u>  ton  </u>			<b>No Bid</b>
6	Hydrofluosilic Acid- Demurrage (first 4 hours free) Quantity: <u>  1  </u> UOM: <u>  hr  </u>			<b>No Bid</b>
7	Ferric Chloride- Dry Quantity: <u>  1  </u> UOM: <u>  ton  </u>	Price: <input type="text" value="\$778.00"/>	Total: <input type="text" value="\$778.00"/>	
8	Ferric Chloride-Liquid Quantity: <u>  1  </u> UOM: <u>  ton  </u>	Price: <input type="text" value="\$778.00"/>	Total: <input type="text" value="\$778.00"/>	
9	Ferric Chloride-Demurrage (first 4 hours free) Quantity: <u>  1  </u> UOM: <u>  hr  </u> Supplier Notes: <input type="text" value="*First Three Hours Free*"/>	Price: <input type="text" value="\$125.00"/>	Total: <input type="text" value="\$125.00"/>	
10	Pebble Quicklime Quantity: <u>  1  </u> UOM: <u>  ton  </u>			<b>No Bid</b>
11	Pebble Quicklime- Demurrage (first 4 hours free) Quantity: <u>  1  </u> UOM: <u>  hr  </u>			<b>No Bid</b>
12	Soda Ash Quantity: <u>  1  </u> UOM: <u>  ton  </u>			<b>No Bid</b>
13	Soda Ash- Demurrage (first 4 hours free) Quantity: <u>  1  </u> UOM: <u>  hr  </u>			<b>No Bid</b>

**Response Total: \$1,681.00**

**CERTIFIED COPY OF RESOLUTIONS  
OF BOARD OF DIRECTORS  
OF PVS TECHNOLOGIES, INC.**

The undersigned, being the Assistant Secretary of PVS Technologies, Inc. (the "Company"), a Michigan corporation, certifies that the following is an accurate and complete copy of resolutions duly adopted by the Board of Directors of the Company, and that said resolutions remain in full force and effect as of the date of this certificate:

"RESOLVED That the Company is authorized to submit bids to private and governmental entities for the sale of products and for the performance of services (collectively, 'Bids').

RESOLVED That the Company is authorized to enter into contracts with private and governmental entities for the sale and purchase of products and for the performance of services (collectively, 'Contracts').

FURTHER RESOLVED That the Company is authorized to submit applications for permits, licenses and other grants of authority from governmental entities which the Company requires to conduct its business (collectively, 'Applications').

FURTHER RESOLVED That the following officers of the Company, and each of them acting alone, shall be and is authorized to execute Bids, Contracts and Applications on behalf of the Company and such other documents relating to Bids, Contracts and Applications as such person deems necessary or expedient for the purposes of carrying out the terms of the Bids, Contracts and Applications or otherwise conducting the business of the Company:

President:	Lauren S. Stein
Vice President:	David A. Nicholson
Vice President and Director:	Timothy F. Nicholson
Vice President of Sales & Marketing:	Craig Mikkelson
Secretary:	Jonathan S. Taub
Treasurer:	Milisav M. Bulatovic
Assistant Secretary:	Jessica A. Taub
Assistant Secretary:	Matthew Nowaczok

IN WITNESS OF THESE CERTIFIED RESOLUTIONS, the undersigned has signed below and affixed the corporate seal of the Company on April 12, 2022.

  
\_\_\_\_\_  
Jessica A. Taub, Assistant Secretary

Subscribed and sworn to before me on  
April 12, 2022.

  
\_\_\_\_\_  
Notary Public, Wayne County, Michigan

My Commission Expires: 3/2/2024

Mary P. Moreau  
Notary Public, Macomb County, MI  
Acting in Wayne County  
Commission expires March 2, 2024





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
03/07/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

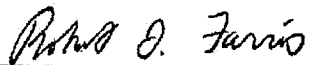
<b>PRODUCER</b> Ralph C. Wilson Agency, Inc  Box 5069 Southfield MI 48086-5069		<b>CONTACT NAME:</b> Lisa Case <b>PHONE (A/C, No, Ext):</b> (248) 355-1414 <b>FAX (A/C, No):</b> (248) 304-0877 <b>E-MAIL ADDRESS:</b> lisac@rcwa.net	
		<b>INSURER(S) AFFORDING COVERAGE</b>	
		<b>INSURER A:</b> Amerisure Mutual Insurance Company	<b>NAIC #</b> 23396
		<b>INSURER B:</b>	
		<b>INSURER C:</b>	
		<b>INSURER D:</b>	
		<b>INSURER E:</b>	
		<b>INSURER F:</b>	

**COVERAGES**      **CERTIFICATE NUMBER:** 22-23 Master      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:			GL0125812	04/01/2022	04/01/2023	EACH OCCURRENCE \$ 1,500,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,500,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 2,500,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			CA1049675	04/01/2022	04/01/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 5,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED    RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		Y/N N	WVC0764044	04/01/2022	04/01/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b>		<b>CANCELLATION</b>	
Lansing Board of Water & Light 1110 S Pennsylvania Avenue  Lansing MI 48901		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 	



**PVS Technologies, Inc.**

SUBSIDIARY OF PVS CHEMICALS, INC

## **Drinking Water Grade Ferric Chloride**

### **Specifications**

**Appearance:** A dark red/brown liquid

**Concentrations:**

FeCl<sub>3</sub> 37% - 42%

FeCl<sub>2</sub> 0.75% maximum

Free Acid as HCl 1.0% maximum Drinking Water Grade

Insolubles 0.008% (80 ppm) maximum

Settle able Insolubles <0.008%

Particle Size <0.002 inches (1/500")

Radionuclides None

**Specific gravity:** 1.38 – 1.49

**Viscosity:** 12.1 centipoises for a 40% solution

**Crystallization:** 37% FeCl<sub>3</sub> (- 15°F); 40% FeCl<sub>3</sub> (10°F)

**ANSI/NSF Standard 60 Certified:** Maximum use level – 250 ppm as solution

**CAS No.:** 7705-08-0

**UN Classification:** UN2582, Ferric Chloride Solution

SQC data available on request



# Safety Data Sheet

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** Ferric Chloride Solution DWG Grade  
**Synonyms** Iron (III) Chloride, Iron trichloride, FeCl<sub>3</sub>  
**UN/ID No.** UN2582  
**Item #** 10244  
**Revision Date** May-20-2020  
**Safety Data Sheet** 5443  
**Recommended Use** Water treatment chemical  
**Uses advised against** Consumer uses: Private households (= general public = consumers).

**Company Name**  
PVS Technologies, Inc.  
10900 Harper Ave.  
Detroit, MI 48213  
(313) 571-1100

**24 Hour Emergency Phone Number** CHEMTREC 1-800-424-9300

## 2. HAZARDS IDENTIFICATION


### Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
May be corrosive to metals	Category 1
Carcinogenicity	Category 1A

### Emergency Overview

**DANGER**

**Hazard statements** Harmful if swallowed  
Causes severe skin burns and eye damage  
May cause cancer



### Precautionary statements

#### Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray

#### Response

- Immediately call a POISON CENTER or doctor/physician
- Specific treatment (see section 4 on this Safety Data Sheet)

Eyes

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 or doctor/physician

## Ferric Chloride Solution DWG Grade

- Skin** IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse
- Inhalation** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Immediately call a POISON CENTER or doctor/physician
- Ingestion** IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell Rinse mouth Do NOT induce vomiting

### Storage

- Store locked up

### Disposal

- Dispose of contents/container to an approved waste disposal plant

### Other Information

#### Other hazards

- Toxic to aquatic life with long lasting effects
- Toxic to aquatic life

#### Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.	Weight-% *
Water	7732-18-5	231-791-2	55-69
Iron trichloride	7705-08-0	231-729-4	31-45
Hydrogen chloride	7647-01-0	231-595-7	0.0-1.0
Ferrous chloride	7758-94-3	231-843-4	0.0-0.7

## 4. FIRST AID MEASURES

#### General advice

- Immediate medical attention is required

#### Eye contact

- Immediate medical attention is required
- Do not rub affected area
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes
- Keep eyes wide open while rinsing

#### Skin contact

- Immediate medical attention is required
- Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes

#### Inhalation

- Call a physician or poison control center immediately
- Remove to fresh air
- If not breathing, give artificial respiration
- If breathing is labored, administer oxygen

#### Ingestion

- Do NOT induce vomiting
- Never give anything by mouth to an unconscious person
- Immediate medical attention is required
- Drink plenty of water
- Remove from exposure, lie down
- Clean mouth with water and drink afterwards plenty of water
- Call a physician or poison control center immediately

#### Note to physician

- Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure
- Treat symptomatically

#### Self-protection for first aid

- Use personal protective equipment as required

## Ferric Chloride Solution DWG Grade

### personnel

- Avoid contact with skin, eyes or clothing

## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

- Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

### Unsuitable extinguishing media

- No information available

### Specific hazards arising from the chemical

- The product causes burns of eyes, skin and mucous membranes
- Thermal decomposition can lead to release of irritating and toxic gases and vapors
- In the event of fire and/or explosion, do not breathe fumes

### Protective equipment and precautions for firefighters

- Wear a self-contained breathing apparatus and chemical protective clothing

### Flammable properties

- No information available

### Explosive properties

- No information available

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

- Evacuate personnel to safe areas
- Use personal protective equipment as required
- Avoid contact with skin, eyes or clothing
- Keep people away from and upwind of spill/leak

### Environmental precautions

- For small spills, absorb material with clay absorbent or other compatible material. Dispose of the waste material according to local, state and governmental requirements.
- For large spills, contain the material using barriers of absorbent pigs, clay absorbent or earth dams.
- US regulations require reporting spills of this material that could reach any surface waters. The toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802

### Methods for cleaning up

- Take up mechanically, placing in appropriate containers for disposal
- Clean contaminated surface thoroughly
- Soak up with inert absorbent material
- Dike far ahead of liquid spill for later disposal
- Prevent product from entering drains
- Dam up
- After cleaning, flush away traces with water

### Other Information

- Spills exceeding the Reportable Quantity (RQ) of 1000 pounds or more must be reported to the National Response Center, (800) 424-8802.

## 7. HANDLING AND STORAGE

### Advice on safe handling

- Use personal protective equipment as required
- Avoid contact with skin, eyes or clothing
- Ensure adequate ventilation, especially in confined areas
- In case of insufficient ventilation, wear suitable respiratory equipment
- Use only with adequate ventilation and in closed systems

### Storage Conditions

- Keep container tightly closed in a dry and well-ventilated place
- Keep out of the reach of children
- Keep containers tightly closed in a dry, cool and well-ventilated place
- Keep in properly labeled containers

### Incompatible materials

Incompatible with strong acids and bases, oxidizers, steel, and most metals, Incompatible with strong acids and bases, Incompatible with oxidizing agents

**Ferric Chloride Solution DWG Grade**

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron trichloride 7705-08-0	TWA: 1 mg/m <sup>3</sup> Fe		TWA: 1 mg/m <sup>3</sup> Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m <sup>3</sup>	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m <sup>3</sup> Fe		TWA: 1 mg/m <sup>3</sup> Fe

**Exposure Guidelines**

**Engineering Controls**                      Ensure adequate ventilation, especially in confined areas.

**Individual protection measures, such as personal protective equipment**

- Respiratory protection**                      • A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respirator.
- Eye/Face protection**                      • Tight sealing safety goggles  
• Face protection shield
- Skin and body protection**                      • Wear suitable protective clothing  
• Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact
- General Hygiene Considerations**                      • Wash contaminated clothing before reuse  
• When using do not eat, drink or smoke  
• Keep away from food, drink and animal feeding stuffs  
• Contaminated work clothing should not be allowed out of the workplace  
• Regular cleaning of equipment, work area and clothing is recommended  
• Avoid contact with skin, eyes or clothing  
• Take off all contaminated clothing and wash it before reuse  
• Wear suitable gloves and eye/face protection

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

**Physical state**                                      Liquid  
**Appearance**                                      Clear to slightly hazy  
**Color**    Red brown  
**Odor**    Slight Iron acidic  
**Odor threshold**                                      No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	<2	
Melting point/Freezing Point	-26 °C / -15 °F	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	No information available	
Evaporation rate	<1	n-Butyl acetate =1
Flammability (solid, gas)	No information available	
Flammability Limit in Air		Not flammable
Upper flammability limit (%)	No information available	
Lower flammability limit (%):	No information available	
Vapor pressure	No information available	negligible
Vapor density	No information available	
Specific Gravity	1.40	
Water solubility	Miscible in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	

**Ferric Chloride Solution DWG Grade**

Kinematic viscosity No information available  
 Dynamic viscosity No information available  
 Explosive properties No information available  
 Oxidizing properties No information available

**Other Information**

Softening point °C No information available  
 Molecular weight No information available  
 VOC Content (%) No information available  
 Density No information available  
 Bulk density 11.7 Pounds per gallon (lb/gal), Typical

**10. STABILITY AND REACTIVITY**

**Stability** • Stable under recommended storage conditions

**Conditions to avoid** • Exposure to air or moisture over prolonged periods

**Incompatible materials** Incompatible with strong acids and bases, oxidizers, steel, and most metals, Incompatible with strong acids and bases, Incompatible with oxidizing agents

**Hazardous Decomposition Products** • Thermal decomposition can lead to release of irritating and toxic gases and vapors

**Possibility of Hazardous Reactions** • None under normal processing and storage

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

**Principle Routes of Exposure** Inhalation, Skin contact, Eye contact

**Inhalation** May cause irritation of respiratory tract. Avoid breathing vapors or mists.

**Ingestion** May cause adverse kidney effects. May cause adverse liver effects.

**Skin contact** Contact causes severe skin irritation and possible burns.

**Eye contact** Corrosive to the eyes and may cause severe damage including blindness.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg ( Rat )		
Iron trichloride 7705-08-0	= 316 mg/kg ( Rat ) = 450 mg/kg ( Rat )	>2000 mg/kg (rat)	
Hydrogen chloride 7647-01-0	238 - 277 mg/kg ( Rat )	> 5010 mg/kg ( Rabbit )	= 1.68 mg/L ( Rat ) 1 h
Ferrous chloride 7758-94-3	450 mg/kg (Rat)		

**Information on toxicological effects**

**Symptoms** Vomiting, Hypoxemia (reduced O2 in the blood), Metabolic Acidosis

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization** No information available.  
**Germ cell mutagenicity** No information available.  
**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrogen chloride 7647-01-0		Group 3		X

IARC (International Agency for Research on Cancer)

*Not classifiable as a human carcinogen*

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

**Reproductive toxicity** No information available.  
**STOT - single exposure** No information available.  
**STOT - repeated exposure** No information available.

**Ferric Chloride Solution DWG Grade**

**Chronic toxicity** Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects. May cause adverse liver effects.

**Target Organ Effects** Eyes, Gastrointestinal tract (GI), Liver, Respiratory system, Skin.

**Aspiration hazard** No information available.

**Numerical measures of toxicity - Product Information**

**Unknown Acute Toxicity** 0% of the mixture consists of ingredient(s) of unknown toxicity  
**The following values are calculated based on chapter 3.1 of the GHS document .**  
**Oral LD50** 832 mg/kg  
**LC50 (Dust/Mist)** 100.2 mg/l

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

**Ecotoxicity** Toxic to aquatic life with long lasting effects  
**0% of the mixture consists of components(s) of unknown hazards to the aquatic environment**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Iron trichloride 7705-08-0		20.95 - 22.56: 96 h Pimephales promelas mg/L LC50 semi-static 20.26: 96 h Lepomis macrochirus mg/L LC50 semi-static 75.6: 96 h Gambusia affinis mg/L LC50 static	27.9: 48 h Daphnia magna mg/L EC50 9.6: 48 h Daphnia magna mg/L EC50 Static
Hydrogen chloride 7647-01-0		282: 96 h Gambusia affinis mg/L LC50 static	
Ferrous chloride 7758-94-3		4: 96 h Morone saxatilis mg/L LC50 static	

**Persistence and degradability** No information available  
**Bioaccumulation** No information available

Chemical Name	Partition coefficient
Iron trichloride 7705-08-0	-4

**Other adverse effects** No information available

**13. DISPOSAL CONSIDERATIONS**

- Disposal of wastes** • This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261)
- Contaminated packaging** • Do not reuse container
- US EPA Waste Number** • D002

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Iron trichloride 7705-08-0	Toxic Corrosive

**14. TRANSPORT INFORMATION****DOT**

**Proper shipping name** Ferric chloride, solution  
**Hazard Class** 8  
**UN/ID No.** UN2582  
**Packing Group** III  
**RQ (lbs)(dry)** Ferric chloride: RQ kg= 454.00, Ferrous chloride: RQ kg= 45.40  
**RQ as is (lbs)(wet)** 2222 (45% Ferric Chloride)  
**Description** UN2582, Ferric chloride, solution, 8, III, RQ  
**Special Provisions** B15, IB3, T4, TP1

**Ferric Chloride Solution DWG Grade**

Emergency Response Guide Number 154

**Transport Canada**

UN/ID No. UN2582  
 Proper shipping name FERRIC CHLORIDE SOLUTION  
 Hazard Class 8  
 Packing Group III  
 Description UN2582, Ferric chloride solution, 8, III

**IATA**

UN/ID No. UN2582  
 Proper shipping name FERRIC CHLORIDE SOLUTION  
 Hazard Class 8  
 Packing Group III  
 ERG Code 8L  
 Special Provisions A3, A803

**IMDG**

UN/ID No. UN2582  
 Proper shipping name FERRIC CHLORIDE SOLUTION  
 Hazard Class 8  
 Packing Group III  
 EmS-No. F-A, S-B  
 Special Provisions 223

**15. REGULATORY INFORMATION**

**US Federal Regulations**

**SARA 311/312 Hazard Categories**

Acute health hazard Yes  
 Chronic Health Hazard Yes  
 Fire hazard No  
 Sudden release of pressure hazard No  
 Reactive Hazard No

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)**

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Iron trichloride 7705-08-0	1000 lb			X
Hydrogen chloride 7647-01-0	5000 lb			X
Ferrous chloride 7758-94-3	100 lb			X

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ (lbs)(dry)
Iron trichloride 7705-08-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Hydrogen chloride 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ferrous chloride 7758-94-3	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

**Ferric Chloride Solution DWG Grade**

Canada

**WHMIS Classification** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR  
**WHMIS Classification** Non-controlled

US State Regulations

**California Proposition 65** This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5			X
Iron trichloride 7705-08-0	X	X	X
Hydrogen chloride 7647-01-0	X	X	X
Ferrous chloride 7758-94-3	X	X	X

DEA List I, List II

Chemical Name	U.S. - DEA - List I or Precursor Chemicals	U.S.- DEA - List II or Essential Chemicals
Hydrogen chloride 7647-01-0	-	0.0 kg, Domestic Sales Weight 50 gallon, Export Volume 27 kg, Export Weight

International Inventories

TSCA Complies  
 DSL/NDSL Complies  
 EINECS/ELINCS Complies  
 ENCS Complies  
 IECSC Complies  
 KECL Complies  
 PICCS Complies  
 AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
 ENCS - Japan Existing and New Chemical Substances  
 IECSC - China Inventory of Existing Chemical Substances  
 KECL - Korean Existing and Evaluated Chemical Substances  
 PICCS - Philippines Inventory of Chemicals and Chemical Substances  
 AICS - Australian Inventory of Chemical Substances

**16. OTHER INFORMATION**

**NFPA** Health hazards 3 Flammability 0 Instability 0 Physical and Chemical Properties  
**HMIS** Health hazards 3 Flammability 0 Physical hazards 0 Personal protection D

Item # 10244  
 Safety Data Sheet 5443  
 Revision Date May-20-2020  
 Issue Date Jun-02-2020  
 Version 4  
 Revision Note \*\*\* Updated value on SDS.  
Disclaimer



### **Ferric Chloride Solution DWG Grade**

All information, statements, data, advice, and/or recommendations, including, without limitation, those relating to storage, loading/unloading, piping, and transportation (collectively referred to herein as "information") are believed to be accurate, reliable, and based on reliable industry and regulatory references. However, no representation or warranty, express or implied, is made as to its completeness, accuracy, fitness for a particular purpose or any other matter, including, without limitation, that the practice or application of any such information is free of patent infringement or other intellectual property misappropriation. The Company providing this SDS is not engaged in the business of providing technical, operational, engineering, or safety information for a fee, and therefore, any such information provided herein has been furnished as an accommodation and without charge. All information provided herein is intended for use by persons having requisite knowledge, skill, and experience in the chemical industry. The Company providing this SDS shall not be responsible or liable for the use, application, or implementation of the information provided herein, and all such information is to be used at the risk, and in the sole judgment and discretion of such persons, their employees, advisors, and agents. This safety data sheet (SDS) is offered for your information, consideration, and investigation as required by federal hazardous products act and related legislation.

End of Safety Data Sheet



The Public Health and Safety Organization

## NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, April 12, 2022** 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?Company=3U690&Standard=060&>

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

#### PVS Technologies

10900 Harper Avenue

Detroit, MI 48213

United States

313-571-1100

[Visit this company's website](#)

(<http://www.pvschemicals.com>)

**Facility :** Decatur, AL

#### Ferrous Chloride[1]

##### *Trade Designation*

##### *Product Function*

##### *Max Use*

Ferrous Chloride, Solution

Other

250mg/L

Liquid Ferrous Chloride

Other

250mg/L

Liquid Ferrous Chloride- DWG

Other

250mg/L

[1] This product may be used for chlorite removal.

NOTE: Only products bearing the NSF Mark on the product, product packaging, and/or documentation shipped with the product are Certified.

**Facility :** Trinity, AL**Ferrous Chloride[1]**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferrous Chloride, Solution	Coagulation & Flocculation	250mg/L
Liquid Ferrous Chloride	Coagulation & Flocculation	250mg/L
Liquid Ferrous Chloride- DWG	Coagulation & Flocculation	250mg/L

[1] This product may be used for chlorite removal.

NOTE: Only products bearing the NSF Mark on the product, product packaging, and/or documentation shipped with the product are Certified.

**Facility :** Distribution Center - Henderson, CO**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride Solution	Coagulation & Flocculation	1000mg/L
LFC	Coagulation & Flocculation	1000mg/L
LFC DWG	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	1000mg/L

**Polymer Blends[PY]**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 1010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 1020	Coagulation & Flocculation	500mg/L
Ferri+Plus 1050	Coagulation & Flocculation	200mg/L
Ferri+Plus 1075	Coagulation & Flocculation	133mg/L
Ferri+Plus 1100	Coagulation & Flocculation	100mg/L
Ferri+Plus 1125	Coagulation & Flocculation	80mg/L
Ferri+Plus 1150	Coagulation & Flocculation	66mg/L
Ferri+Plus 1200	Coagulation & Flocculation	50mg/L
Ferri+Plus 1300	Coagulation & Flocculation	33mg/L
Ferri+Plus 1400	Coagulation & Flocculation	25mg/L

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

**Facility :** Augusta, GA

**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
LFC	Coagulation & Flocculation	1000mg/L
LFC-DWG	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	1000mg/L

**Facility :** Distribution Center - East St. Louis, IL

**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	1000mg/L

**Ferrous Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferrous Chloride	Coagulation & Flocculation	250mg/L
Ferrous Chloride, Solution	Coagulation & Flocculation	250mg/L
Liquid Ferrous Chloride	Coagulation & Flocculation	250mg/L

NOTE: Only products bearing the NSF Mark are NSF Certified.

**Facility :** Distribution Center - Louisville, KY

**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	1000mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	1000mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
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**Facility :** Distribution Center - Baltimore, MD**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	1000mg/L

**Facility :** Detroit, MI**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride Solution	Coagulation & Flocculation	1000mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
LFC	Coagulation & Flocculation	1000mg/L
LFC-DWG	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	1000mg/L

**Polymer Blends[PY]**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 1010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 1020	Coagulation & Flocculation	500mg/L
Ferri+Plus 1025	Coagulation & Flocculation	400mg/L
Ferri+Plus 1050	Coagulation & Flocculation	200mg/L
Ferri+Plus 1075	Coagulation & Flocculation	133mg/L
Ferri+Plus 1100	Coagulation & Flocculation	100mg/L
Ferri+Plus 1125	Coagulation & Flocculation	80mg/L
Ferri+Plus 1150	Coagulation & Flocculation	66mg/L
Ferri+Plus 1200	Coagulation & Flocculation	50mg/L
Ferri+Plus 1300	Coagulation & Flocculation	33mg/L
Ferri+Plus 1400	Coagulation & Flocculation	25mg/L
Ferri+Plus 3005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 3010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 3020	Coagulation & Flocculation	500mg/L

Ferri+Plus 3025	Coagulation & Flocculation	400mg/L
Ferri+Plus 3050	Coagulation & Flocculation	200mg/L
Ferri+Plus 3075	Coagulation & Flocculation	133mg/L
Ferri+Plus 3100	Coagulation & Flocculation	100mg/L
Ferri+Plus 3125	Coagulation & Flocculation	80mg/L
Ferri+Plus 3150	Coagulation & Flocculation	66mg/L
Ferri+Plus 3200	Coagulation & Flocculation	50mg/L
Ferri+Plus 3300	Coagulation & Flocculation	33mg/L
Ferri+Plus 3400	Coagulation & Flocculation	25mg/L
Ferri+Plus 4005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 4010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 4020	Coagulation & Flocculation	500mg/L
Ferri+Plus 4050	Coagulation & Flocculation	200mg/L
Ferri+Plus 4075	Coagulation & Flocculation	133mg/L
Ferri+Plus 4100	Coagulation & Flocculation	100mg/L
Ferri+Plus 4125	Coagulation & Flocculation	80mg/L
Ferri+Plus 4150	Coagulation & Flocculation	66mg/L
Ferri+Plus 4200	Coagulation & Flocculation	50mg/L
Ferri+Plus 4300	Coagulation & Flocculation	33mg/L
Ferri+Plus 4400	Coagulation & Flocculation	25mg/L
Ferri+Plus 5005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 5010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 5020	Coagulation & Flocculation	500mg/L
Ferri+Plus 5050	Coagulation & Flocculation	200mg/L
Ferri+Plus 5075	Coagulation & Flocculation	133mg/L
Ferri+Plus 5100	Coagulation & Flocculation	100mg/L
Ferri+Plus 5125	Coagulation & Flocculation	80mg/L
Ferri+Plus 5150	Coagulation & Flocculation	66mg/L
Ferri+Plus 5200	Coagulation & Flocculation	50mg/L
Ferri+Plus 5300	Coagulation & Flocculation	33mg/L
Ferri+Plus 5400	Coagulation & Flocculation	25mg/L

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

**Facility :** Distribution Center - Lakeville, MN

**Ferric Chloride**

**Trade Designation**

Ferric Chloride, Solution

**Product Function**

Coagulation & Flocculation

**Max Use**

1000mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	1000mg/L

**Facility :** Distribution Center - Morrisville, PA**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	1000mg/L

**Facility :** Distribution Center - Pottstown, PA**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	1000mg/L

**Facility :** Fairless Hills, PA**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	1000mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	1000mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

**Facility :** Distribution Center - Fort Worth, TX**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	1000mg/L

**Facility :** Houston, TX**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride LMG	Coagulation & Flocculation	1000mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	1000mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	1000mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	1000mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
LFC	Coagulation & Flocculation	1000mg/L
LFC-DWG	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	1000mg/L

**Facility :** Distribution Center - Petersburg, VA**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	1000mg/L

**Facility :** New Martinsville, WV**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	1000mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	1000mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	1000mg/L



**Polymer Blends[PY]**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 1010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 1020	Coagulation & Flocculation	500mg/L
Ferri+Plus 1025	Coagulation & Flocculation	400mg/L
Ferri+Plus 1050	Coagulation & Flocculation	200mg/L
Ferri+Plus 1075	Coagulation & Flocculation	133mg/L
Ferri+Plus 1100	Coagulation & Flocculation	100mg/L
Ferri+Plus 1125	Coagulation & Flocculation	80mg/L
Ferri+Plus 1150	Coagulation & Flocculation	66mg/L
Ferri+Plus 1200	Coagulation & Flocculation	50mg/L
Ferri+Plus 1300	Coagulation & Flocculation	33mg/L
Ferri+Plus 1400	Coagulation & Flocculation	25mg/L
Ferri+Plus 3005	Coagulation & Flocculation	1005mg/L
Ferri+Plus 3010	Coagulation & Flocculation	1000mg/L
Ferri+Plus 3020	Coagulation & Flocculation	500mg/L
Ferri+Plus 3025	Coagulation & Flocculation	400mg/L
Ferri+Plus 3050	Coagulation & Flocculation	200mg/L
Ferri+Plus 3075	Coagulation & Flocculation	133mg/L
Ferri+Plus 3100	Corrosion & Scale Control	100mg/L
Ferri+Plus 3150	Coagulation & Flocculation	66mg/L

[PY] Polyamines Certified by NSF International comply with 40 CFR 141.111 requirements for percent monomer and dose.

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Number of matching Manufacturers is 1

Number of matching Products is 146

Processing time was 0 seconds

## SWORN AND NOTARIZED AFFIDAVIT OF COMPLIANCE

### IRAN ECONOMIC SANCTIONS ACT

#### Michigan Public Act No. 517 of 2012

All bidders must submit the following certification statement in compliance with Public Act No. 517 of 2012 (the "Iran Economic Sanctions Act") and attach this form to the bid. **The Lansing Board of Water & Light shall not accept any bid that does not include this sworn and notarized certification of statement.**

The undersigned, the owner or authorized officer of PVS Technologies Inc. (the Bidder), pursuant to the compliance certification requirement provided in the Lansing Board of Water & Light Request for Proposal, hereby certifies, represents and warrants that the Bidder (including its officers, directors and employees) is not an "Iran linked business" within the meaning of the Iran Economic Sanctions Act, and that in the event the Bidder is awarded a contract as a result of the aforementioned Request for Proposal, the Bidder will not become an "Iran linked business" at any time during the course of performing the work or any services under the contract.

Specifically, the undersigned, owner or authorized officer of PVS Technologies Inc. (the Bidder) attests it does not fall within the following definition of a "Iran linked business" under the Iran Economic Sanctions Act:

***MCL 129.312 (e) of the Act provides:***

*(e) "Iran linked business" means either of the following:*

*(i) A person [as defined below by MCL 129.312(f)] engaging in investment activities in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran.*

*(ii) A financial institution that extends credit to another person, if that person will use the credit to engage in investment activities in the energy sector of Iran.*

***MCL 129.312(f) of the Act defines "Person" as follows:***

*(f) "Person" means any of the following:*

*(i) An individual, corporation, company, limited liability company, business association, partnership, society, trust, or any other nongovernmental entity, organization, or group.*

*(ii) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in section 1701(c)(3) of the international financial institutional act, 22 USC 262r(c)(3).*

The Bidder further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or two (2) times the amount of the contract or proposed contract for which the false certification is made, whichever is greater, the cost of the Lansing Board of Water & Light's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a Request for Proposal for three (3) years from the date it is determined that the person has submitted the false certification.

BIDDER

PVS Technologies Inc.

By: Craig Mikkelsen Craig Mikkelson

Its: Vice President of Sales & Marketing

Date: April 12, 2022

STATE OF Michigan )

COUNTY OF Wayne )

This instrument was acknowledged before me on the 11th day of April, 202022, by Shauna Barthel.

Shauna Barthel  
Shauna Barthel, Notary Public  
Wayne County, Michigan My

Commission Expires: January 15, 2027 Acting

in the County of: Wayne

**Shauna Barthel**  
**Notary Public, State of Michigan**  
**Macomb County, Michigan**  
**My Commission Expires Jan 15, 2027**  
Acting Wayne County

