

**Bid Tabulation Packet
for
Solicitation OPN2128651B1**

Ferric Chloride

Bid Designation: Public



Broward County Board of County Commissioners

Bid #OPN2128651B1 - Ferric Chloride

Creation Date **Jul 18, 2024**

End Date **Aug 23, 2024 2:00:00 PM EDT**

Start Date **Aug 5, 2024 12:49:04 PM EDT**

Awarded Date **Not Yet Awarded**

OPN2128651B1--01-01 Year 1, Ferric Chloride Delivery, District 1					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.14	100000 / pound	\$214,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.14 per Pound of Iron. The corresponding price Per Wet Pound is \$0.28			

OPN2128651B1--01-02 Year 1, Ferric Chloride Delivery, District 2					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.14	45000 / pound	\$96,300.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.14 per Pound of Iron. The corresponding price Per Wet Pound is \$0.28			

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OPN2128651B1--01-03 Year 2, Ferric Chloride Delivery, District 1					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.20	100000 / pound	\$220,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.20 per Pound of Iron. The corresponding price per Wet Pound is \$0.29			

OPN2128651B1--01-04 Year 2, Ferric Chloride Delivery, District 2					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.20	45000 / pound	\$99,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.20 per Pound of Iron. The corresponding price per Wet Pound is \$0.29			

	<p>The unit price entered is \$2.20 per Pound of Iron. The corresponding price per Wet Pound is</p>
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OPN2128651B1--01-05 Year 3, Ferric Chloride Delivery, District 1					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.26	100000 / pound	\$226,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.26 per Pound of Iron. The corresponding price per Wet Pound is \$0.30			

OPN2128651B1--01-06 Year 3, Ferric Chloride Delivery, District 2					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.26	45000 / pound	\$101,700.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.26 per Pound of Iron. The corresponding price per Wet Pound is \$0.30			

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OPN2128651B1--01-07 Year 4, Ferric Chloride Delivery, District 1					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.33	100000 / pound	\$233,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is per \$2.33 Pound of Iron. The corresponding price per Wet Pound is \$0.31			

OPN2128651B1--01-08 Year 4, Ferric Chloride Delivery, District 2					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.33	45000 / pound	\$104,850.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is per \$2.33 Pound of Iron. The corresponding price per Wet Pound is \$0.31			

OPN2128651B1--01-09 Year 5, Ferric Chloride Delivery, District 1					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.40	100000 / pound	\$240,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.40 per Pound of Iron. The corresponding price per Wet Pound is \$0.32			

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OPN2128651B1--01-10 Year 5, Ferric Chloride Delivery, District 2					
Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
PVS Technologies	First Offer - \$2.40	45000 / pound	\$108,000.00	Y	Y
Product Code: Agency Notes:		Supplier Product Code: Supplier Notes: The unit price entered is \$2.40 per Pound of Iron. The corresponding price per Wet Pound is \$0.32			

Supplier Totals

f PVS Technologies		\$1,642,850.00 (10/10 items)	
Bid Contact Shauna Barthel techbids@pvschemicals.com Ph 313-921-1200		Address 10900 Harper Avenue Detroit, MI 48213	
Agency Notes:		Supplier Notes:	Head Attch: 

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PVS Technologies

Bid Contact **Shauna Barthel**
techbids@pvschemicals.com
Ph 313-921-1200

Address **10900 Harper Avenue**
Detroit, MI 48213

Item #	Line Item	Notes	Unit Price	Qty/Unit	Atch.	Docs
OPN2128651B1--01-01	Year 1, Ferric Chloride Delivery, District 1	Supplier Product Code: Supplier Notes: The unit price entered is \$2.14 per Pound of Iron. The corresponding price Per Wet Pound is \$0.28	First Offer - \$2.14	100000 / pound	\$214,000.00	Y Y
OPN2128651B1--01-02	Year 1, Ferric Chloride Delivery, District 2	Supplier Product Code: Supplier Notes: The unit price entered is \$2.14 per Pound of Iron. The corresponding price Per Wet Pound is \$0.28	First Offer - \$2.14	45000 / pound	\$96,300.00	Y Y

OPN2128651B1--01-03	Year 2, Ferric Chloride Delivery, District 1	Supplier Product Code: Supplier Notes: The unit price entered is \$2.20 per Pound of Iron. The corresponding price per Wet Pound is \$0.29	First Offer - \$2.20	100000 / pound	\$220,000.00	Y	Y
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OPN2128651B1--01-04	Year 2, Ferric Chloride Delivery, District 2	Supplier Product Code:	First Offer - \$2.20	45000 / pound	\$99,000.00	Y	Y
		Supplier Notes:					
		The unit price entered is \$2.20 per Pound of Iron.					
		The corresponding price per Wet Pound is \$0.29					

The unit price entered is \$2.20 per Pound of Iron.
The corresponding price per Wet Pound is

OPN2128651B1--01-05	Year 3, Ferric Chloride Delivery, District 1	Supplier Product Code:	First Offer - \$2.26	100000 / pound	\$226,000.00	Y	Y
		Supplier Notes:					
		The unit price entered is \$2.26 per Pound of Iron.					
		The corresponding price per Wet Pound is \$0.30					

OPN2128651B1--01-06	Year 3, Ferric Chloride Delivery, District 2	Supplier Product Code:	First Offer - \$2.26	45000 / pound	\$101,700.00	Y	Y
		Supplier Notes:					
		The unit price entered is \$2.26 per Pound of Iron.					
		The corresponding price per Wet Pound is \$0.30					

OPN2128651B1--01-07	Year 4, Ferric Chloride Delivery, District 1	Supplier Product Code:	First Offer - \$2.33	100000 / pound	\$233,000.00	Y	Y
		Supplier Notes:					
		The unit price entered is per \$2.33 Pound of Iron.					
		The corresponding price per Wet Pound is \$0.31					

OPN2128651B1--01-08	Year 4, Ferric Chloride Delivery, District 2	Supplier Product Code:	First Offer - \$2.33	45000 / pound	\$104,850.00	Y	Y
		Supplier Notes:					
		The unit price entered is per \$2.33 Pound of Iron.					
		The corresponding price per Wet Pound is \$0.31					

OPN2128651B1--01-09	Year 5, Ferric Chloride Delivery, District 1	Supplier Product Code:	First Offer - \$2.40	100000 / pound	\$240,000.00	Y	Y
		Supplier Notes:					
		The unit price entered is \$2.40 per Pound of Iron.					
		The corresponding price per Wet Pound is \$0.32					

OPN2128651B1--01-10	Year 5, Ferric Chloride Delivery, District 2	Supplier Product Code: Supplier Notes: The unit price entered is \$2.40 per Pound of Iron. The corresponding price per Wet Pound is \$0.32	First Offer - \$2.40	45000 / pound	\$108,000.00	Y	Y
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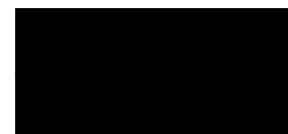
Supplier Total **\$1,642,850.00**

PVS Technologies

Item: **Year 1, Ferric Chloride Delivery, District 1**

Attachments

Answer to Question 21, DWG Spec Sheet, NSF, SDS.pdf



PVS CHEMICALS, INC.
10900 HARPER AVE
DETROIT, MI 48213

PVS Technologies, Inc.

Bid# OPN2128641B1 – Ferric Chloride

Vendor Questionnaire

Question #21: Is your firm or any of its principles currently principals or officers of another organization?

Answer: Yes, officers of other PVS Chemical subsidiaries.



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

Trade Designation	Product Function	Max Use
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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

<p>DANGER Hazard statements</p>	<p>Harmful if swallowed Causes severe skin burns and eye damage May cause cancer</p>

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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 1, Ferric Chloride Delivery, District 2**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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

<p>DANGER</p> <p>Hazard statements</p>	<p>Harmful if swallowed Causes severe skin burns and eye damage May cause cancer</p>

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, CO₂, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 2, Ferric Chloride Delivery, District 1**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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

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- 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, CO₂, 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

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron trichloride 7705-08-0	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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.

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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

PVS Technologies

Item: **Year 2, Ferric Chloride Delivery, District 2**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Fort Worth, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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

<p>DANGER</p> <p>Hazard statements</p>	<p>Harmful if swallowed Causes severe skin burns and eye damage May cause cancer</p>

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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 3, Ferric Chloride Delivery, District 1**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

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

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD**Ferric Chloride**

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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, CO₂, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 3, Ferric Chloride Delivery, District 2**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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

CAM #26-0387

Exhibit 3

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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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Fort Worth, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 4, Ferric Chloride Delivery, District 1**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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

CAM #26-0387

Exhibit 3

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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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.

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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

PVS Technologies

Item: **Year 4, Ferric Chloride Delivery, District 2**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

Trade Designation	Product Function	Max Use
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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

CAM #26-0387

Exhibit 3

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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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 5, Ferric Chloride Delivery, District 1**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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

CAM #26-0387

Exhibit 3

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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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Fort Worth, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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

<p>DANGER</p> <p>Hazard statements</p>	<p>Harmful if swallowed Causes severe skin burns and eye damage May cause cancer</p>

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, CO2, 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 ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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

PVS Technologies

Item: **Year 5, Ferric Chloride Delivery, District 2**

Attachments

DWG Spec Sheet, NSF, SDS.pdf



PVS Technologies, Inc.

SUBSIDIARY OF PVS CHEMICALS, INC

Drinking Water Grade Ferric Chloride

Specifications

Appearance: A dark red/brown liquid

Concentrations:

FeCl₃ 37% - 42%

FeCl₂ 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% FeCl₃ (- 15°F); 40% FeCl₃ (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



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Tuesday, August 13, 2024** 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&>

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]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

Ferrous Chloride

<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

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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/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 : Burns Harbor, IN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
LFC-DWG	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Kansas City, KS

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Louisville, KY

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride DWG	Coagulation & Flocculation	795mg/L
Ferric Chloride Drinking Water Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L

Facility : Distribution Center - Baltimore, MD

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Detroit, MI

Ferric Chloride

Trade Designation	Product Function	Max Use
Ferric Chloride Solution	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

Trade Designation	Product Function	Max Use
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 3010	Coagulation & Flocculation	803mg/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	798mg/L
Ferri+Plus 4010	Coagulation & Flocculation	803mg/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

CAM #26-0387

Exhibit 3

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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	798mg/L
Ferri+Plus 5010	Coagulation & Flocculation	803mg/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 : Cannon Falls, MN

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/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	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride- DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

Facility : Houston, TX**Ferric Chloride**

Trade Designation	Product Function	Max Use
Ferric Chloride LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution DWG (LFCD)	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution EMD	Coagulation & Flocculation	795mg/L
Ferric Chloride Solution LMG	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
LFC	Coagulation & Flocculation	795mg/L
LFC-DWG	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride - DWG	Coagulation & Flocculation	795mg/L

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

Trade Designation	Product Function	Max Use
Ferric Chloride Solution DWG Grade	Coagulation & Flocculation	795mg/L
Ferric Chloride, Solution	Coagulation & Flocculation	795mg/L

Liquid Ferric Chloride	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride Drinking Water Grade (DWG)	Coagulation & Flocculation	795mg/L
Liquid Ferric Chloride LMG	Coagulation & Flocculation	795mg/L

Polymer Blends[PY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferri+Plus 1005	Coagulation & Flocculation	798mg/L
Ferri+Plus 1010	Coagulation & Flocculation	803mg/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.

Number of matching Manufacturers is 1
 Number of matching Products is 149
 Processing time was 0 seconds



Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
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, CO2, 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

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron trichloride 7705-08-0	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe		TWA: 1 mg/m ³ 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	negligible
Vapor pressure	No information available	
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	

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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.

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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

Supplier: PVS Technologies

Security Requirements

A. General Security Requirements and Criminal Background Screening:

1. All contractor and sub-contractor personnel requiring unescorted access to Broward County facilities must obtain a County issued contractor identification badge (contractor ID badge); except as specifically stated herein.
2. The background screening requirements for obtaining a contractor ID badge will depend on the facility to which unescorted access is being requested. Contract Administrators or designees and contractors may contact Broward County Security at (954) 357-6000 or FMSecurity@broward.org for the required background screening requirements associated with access to specific facilities. Contract Administrators will communicate all current and appropriate requirements to the contractor and sub-contractor throughout the contract period.

B. General Facilities:

1. Contractor and sub-contractor personnel servicing and requiring unescorted access to General Facilities must have a County issued contractor ID badge (contractor ID badge) which will be the responsibility of the contractor to obtain. Depending upon the request, the badge may carry electronic access privileges. The badge must be visible and worn at all times together with the contractor's company/business contractor ID badge. Similar to employee security/ID badges, requests for contractor ID badges are initially approved by the requesting agency director or designee and then submitted to Facilities Management Division (FMD) Security for final approval.
2. The issuance of a contractor ID badge for unescorted access to General Facilities requires a "Level 1" FDLE background check, which can be conducted by the Florida Department of Law Enforcement (FDLE). This "Level 1" FDLE background check is the contractor's responsibility and should be included in the bid price. FDLE background checks can be done by the contractor by phone at (850) 410-8109 or online at <https://web.fdle.state.fl.us/search/app/default>
3. Upon completion of the background check, the contractor must attach a copy of the results to the contractor's application for a contractor ID badge. The Project Manager or designee utilizing the service of the contractor will be the "Sponsor" and will either provide the contractor with a Contractor ID Badge Request or assist the contractor in completing an on-line application for the County issued contractor ID badge.
4. Requests for a contractor ID badge requiring an FDLE background check may require lengthy processing and review by the Broward Sheriff's Office (BSO). Contractors and subcontractors must therefore submit the request to Broward County Security at least two (2) weeks prior to the start of service by the contractor. When identification badges are ready, Broward County Security will contact the contractor to arrange pick up. Upon pick up, the applicant must present a valid Florida identification and must be accompanied by his or her supervisor. Broward County Security will then supply contractor ID badge valid for the anticipated period within which the work will be performed. The validity period must be clearly stated on the Contractor ID Badge Request Form; however, the period of validity will not exceed one (1) year. Background checks will be required for renewal of contractor ID badge. At the termination of the contract and separation of employee services, the contractor is responsible for the collection and return of all contractor ID badge to the Project Manager and/or to Broward County Security.
5. Compliance with the County's security requirements is part of the overall contract performance evaluation. Final payment will, in part, be contingent on the return of all contractor ID badges issued to contractor personnel.
6. Broward County Security is located at Governmental Center East, 115 South Andrews Avenue Fort Lauderdale, FL 33301. Telephone (954) 357-6000.
7. All contractors must wear distinctive and neat appearing uniforms with vendor's company name. Sub-contractor personnel must also have Broward County issued contractor IDs and meet the same security requirements and uniform standards as the primary contractor.

8. Contractors will not be allowed unescorted on the job site without proper County issued contractor ID badges.

C. Facilities Critical to Security and Public Safety:

Many Broward County government facilities will have areas designated as critical to security and public safety, pursuant to Broward County Ordinance 2003-08 Sections 26-121 and 26-122, as may be amended. The issuance of a contractor ID badge for unescorted access to facilities critical to security and public safety may entail a comprehensive statewide and national background check. Unescorted access to certain facilities occupied by the Broward Sheriff's Office (BSO) and the State Attorney's Office will require a national fingerprint-based records check per the Criminal Justice Information System (CJIS) policy. A contractor employee found to have a criminal record consisting of felony conviction(s) shall be disqualified from access to the State Attorney's Offices and certain BSO facilities. A contractor employee with a record of misdemeanor offense(s) may be granted access if the System Security Officer (CSO), Terminal Access Coordinator (TAC), and FDLE determines that the nature of the offense(s) do not warrant disqualification. Applicants shall also be disqualified on the basis of confirmations that arrest warrants are outstanding for such applicants.

D. Contractor Work Crews:

Background investigations are generally not required for each member of a contractor work crew working on county premises and outside a building or structure. Examples are landscape crews and roofers. If it is necessary to enter the building or structure unescorted, these work crew members should obtain a contractor ID badge. If not, work crew members must be escorted at all times by the project manager, or designee, and must be under the direct supervision of a foreperson for the contractor. The foreperson must be aware of the crew members' whereabouts, has completed the appropriate background check for the location and type of work being undertaken, and has been issued and is displaying a contractor ID badge.

All members of a night cleaning crew must complete a background investigation appropriate to the requirements of the facility and so should all work crew members not escorted when working at a critical county facility.

Notwithstanding, the using agency is best positioned and suited to determine the safeguards and requirements that should be in place to manage the risks and consequences associated with the roles and activities of contractor, subcontractor, and work crews, when requesting a contractor ID badge. The agency is aware of the characteristics of the client population being served by the classes of persons, the need to safeguard high-value assets, and the requirement to comply with all statutory requirements governing background investigations.

E. Other Vendors:

Consultants, delivery personnel, and vending machine operators, without a County issued contractor badge, may obtain a Visitor pass and should be escorted by County personnel when accessing and working in designated non-public and employee work areas at both general facilities and facilities critical to security and public safety.

F. Port Everglades Locations:

- A. The Department of Port Everglades requires persons to present, at Port entry, a valid driver's license, and valid reason for wishing to be granted Port access in order to obtain a temporary/visitor ID badge. For persons who will visit the Port more than fifteen (15) times in a 90-day period, a permanent identification badge must be obtained and paid for by the Consultant for all employees, subconsultants, or agents visiting or working on the port project. A Transportation Worker Identification Credential (TWIC) must also be obtained in order to be granted unescorted access to designated secure areas. ID Badges are valid for up to three years, and the fees, if applicable, paid pursuant to Broward County Administrative Code, Section 42.6. For further information, please call (954) 765-4604 or (954) 765-4225.

- B. All vehicles that are used regularly on the dock apron must have a Dockside Parking Permit. Only a limited number of permits will be issued per business entity. The fee is \$100.00 per permit/vehicle. Individuals requesting a permit must possess a valid Port-issued Restricted Access Area badge with a "Dock" destination. Requests for Dockside Parking Permits must be submitted in writing, on company letterhead, to the ID Badge Office. Applicants must demonstrate a need for access to the dock apron. Requests shall be investigated, and

approved, if appropriate justification is provided. Supporting documentation must be supplied, if requested. Dock permits are not transferable and must be affixed to the lower left corner of the permitted vehicle's windshield. Should the permit holder wish to transfer the permit to another vehicle during the term of issuance, the permit will be removed and exchanged at no charge for a new permit.

- C. The Federal Government has instituted requirements for a TWIC for all personnel requiring unescorted access to designated secure areas within Port Everglades. The Consultant will be responsible for complying with the applicable TWIC requirements. For further information, please call 1-866-347-8371, or go online to <https://universalenroll.dhs.gov/twic-home>.

G. Airport Security Program and Aviation Regulations:

1. Consultant/contractor shall observe all security requirements and other requirements of the Federal Aviation Regulations applicable to Consultant/contractor, including without limitation, all regulations of the United States Department of Transportation, the Federal Aviation Administration and the Transportation Security Administration. Consultant/contractor also agrees to comply with the County's Airport Security Program and the Restricted Area ("RA") Vehicle Access Program, and any amendments thereto, and to comply with such other rules and regulations as may be reasonably prescribed by the County, including any regulations pertaining to emergency response training, and to take such steps as may be necessary or directed by the County to insure that sub consultants/subcontractors, employees, invitees and guests of Consultant/contractor observe these requirements. If required by the Aviation Department, Consultant/contractor shall conduct background checks of its employees in accordance with applicable Federal Regulations. If as a result of the acts or omissions of Consultant/contractor, its sub consultants/subcontractors, employees, invitees or guests, the County incurs any fines and/or penalties imposed by any governmental agency, including without limitation, the United States Department of Transportation, the Federal Aviation Administration or the Transportation Security Administration, or any expense in enforcing any Federal regulations, including without limitation, airport security regulations, or the rules or regulations of the County, and/or any expense in enforcing the County's Airport Security Program, then Consultant/contractor agrees to pay and/or reimburse to County all such costs and expenses, including all costs of administrative proceedings, court costs, and attorney's fees and all costs incurred by County in enforcing this provision. Consultant/contractor further agrees to rectify any security deficiency or other deficiency as may be determined as such by the County or the United States Department of Transportation, Federal Aviation Administration, the Transportation Security Administration, or any other Federal agency with jurisdiction. In the event Consultant/contractor fails to remedy any such deficiency, the County may do so at the sole cost and expense of Consultant/contractor. The County reserves the right to take whatever action is necessary to rectify any security deficiency or other deficiency.

a) Access to Security Identification Display Areas and Identification Media.

Consultant/contractor shall be responsible for requesting the Aviation Department to issue Airport Issued Identification Media to all employees who are authorized access to Security Identification Display Areas ("SIDA") on the Airport, as designated in the Airport Security Program. In addition, consultant/contractor shall be responsible for the immediate reporting of all lost

or stolen Airport Issued Identification Media and the immediate return of the media of consultant/contractor's personnel transferred from the Airport, or terminated from the employ of the consultant/contractor, or upon termination of this Agreement. Before an Airport Issued Identification Media is issued to an employee, consultant/contractor shall comply with the requirements of applicable Federal regulations with regard to fingerprinting for criminal history record checks and security threat assessments, and shall require that each employee complete security training programs conducted by the Aviation Department. The consultant/contractor shall pay or cause to be paid to the Aviation Department such charges as may be established from time to time for lost or stolen Airport Issued Identification Media and those not returned to the Aviation Department in accordance with these provisions. The Aviation Department shall have the right to require the consultant/contractor to conduct background investigations

and to furnish certain data on such employees before the issuance of Airport Issued Identification Media, which data may include the fingerprinting of employee applicants for such media.

- b) Operation of Vehicles on the RA: Before the consultant/contractor shall permit any employee of consultant/contractor or of any subconsultant/subcontractor to operate a motor vehicle of any kind or type on the RA (and unless escorted by an Aviation Department approved escort), the consultant/contractor shall ensure that all such vehicle operators possess current, valid, and appropriate Florida driver's licenses. In addition, any motor vehicles and equipment of consultant/contractor or of any subconsultant/subcontractor operating on the RA must have an appropriate vehicle identification permit issued by the Aviation Department, which identification must be displayed as required by the Aviation Department.
- c) Consent to Search/Inspection: The consultant/contractor agrees that its personnel, vehicles, cargo, goods and other personal property are subject to being inspected and searched when attempting to enter or leave and while on the RA. The consultant/contractor further agrees on behalf of itself and its subconsultant/subcontractors, that it shall not authorize any employee or other person to enter the RA unless and until such employee or other person has executed a written consent-to-search/inspection acceptable to the Aviation Department. Consultant/contractor acknowledges and understands that the foregoing requirements are for the protection of users of the Airport and are intended to reduce incidents of cargo tampering, aircraft sabotage, thefts and other unlawful activities at the Airport. For this reason, consultant/contractor agrees that persons not executing such consent-to-search/inspection shall not be employed by the consultant/contractor or by any sub consultant/subcontractor at the Airport in any position requiring access to the RA or allowed entry to the RA by the consultant/contractor or by any sub consultant/subcontractor.
- d) Consultant/contractor understands and agrees that if any of its employees, or the employees of any of its sub consultants/subcontractors, are required in the course of the work to be performed under this Agreement to access or otherwise be in contact with Sensitive Security Information ("SSI") as defined and construed under Federal law, that individual will be required to execute a Sensitive Security Information Non-Disclosure Agreement promulgated by the Aviation Department.
- e) The provisions hereof shall survive the expiration or any other termination of this Agreement.

H. Water and Wastewater Services (WWS):

1. Contractors/Consultants may receive a WWS ID Badge and/or Access Card and/or Keys while working at WWS facility work sites. These items provide modified access to certain areas and systems otherwise restricted to non-WWS employees and can only be obtained from the WWS Security Manager. These items may be rescinded at the discretion of the WWS Security Officer. The WWS ID Badge, Access Card and/or Keys remain the property of Broward County and must be returned to your WWS contact person at the end of the contract/project.
2. All contractors will complete and sign the WWS Contractor/Consultant Security Memorandum and provide a copy of their Driver's License to be recorded on Schlage Card Access System Profile.
3. A lost or stolen ID Badge and/or Access Card and/or Keys must be reported to the Security Manager immediately.
4. WWS may terminate access to any contractor who acts inappropriately while on County property and has the right to contact BSO if necessary, to have the contractor removed and/or file charges against them.

I. Additional Security Requirements for Parks and Recreation:

1. Contractor expressly understands and agrees that a duty is hereby created under this Contract that requires contractor to provide ongoing disclosure throughout the term of this

Contract as provided for herein relative to the criminal background screening required by this Section.

2. Contractor shall perform criminal background screening as identified in Item 3 below on its officers, employees, agents, independent contractors and volunteers who will be working under this contract in any County park ("collectively referred to as "County Park Property"). Further, if contractor is permitted to utilize subcontractors under this contract, contractor shall perform or ensure that the background screening as required in Item 3 below is conducted on any permitted subcontractor, which term includes the subcontractor's officers, employees, agents, independent contractors and volunteers who will be working under this contract on County Park property.
3. Contractor shall not permit any person who is listed as a sexual predator or sexual offender on the Florida Department of Law Enforcement, Sexual Offenders and Predators Website or the United States Department of Justice, National Sex Offender Public Website, to provide any services for contractor on County Park Property. All persons subject to the criminal background screening under this contract shall be rescreened annually based on the date of initial screening.
4. Contractor shall maintain copies of the results of the criminal background screening required by this Section for the term of this contract and promptly forward copies of same to County, upon its request.
5. Contractor shall be required to furnish to County's Parks and Recreation Project Manager, on a monthly basis, an Affidavit affirming the persons listed in the Affidavit have been background screened as required in Item 3 above and have been deemed eligible by contractor to work on County Park property. Contractor's monthly Affidavit shall update information from the previous Affidavit by reconfirming the status of persons who have previously been deemed eligible as provided for above and updating the list, when applicable, to specifically identify new persons providing services for contractor under this Contract who have been background screened as required in Item 3 above and deemed eligible to work on County Park Property. The Contract Administrator may, in his or her discretion, permit contractor to furnish the monthly Affidavit in an electronic format.
6. In the event contractor obtains, or is provided, supplemental criminal background information, including police reports and arrest information, which potentially disqualifies a person previously deemed eligible by contractor to provide services under this contract, contractor shall take immediate action to review the matter; however, during such review time and until a determination of eligibility is made by contractor based on the requirements of this Section, contractor shall immediately cease allowing the person to work on County Park Property. Additionally, contractor shall be required to inform any person background screened pursuant to this Section who is providing services under this contract, to notify contractor within forty-eight (48) hours of any arrest related to sexual misconduct which has occurred after the person was deemed eligible to work on County Park Property.
7. Contractor shall, by written contract, require its permitted subcontractors to agree to the requirements and obligations of this Section.
8. County may terminate this contract immediately for cause, with Notice provided to contractor, for a violation related to contractor's failure to perform the required background screening on its officers, employees, agents, independent contractors and volunteers who will be working under this Agreement on County Park Property. County may also terminate this contract immediately for cause, with Notice provided to contractor, if County determines contractor failed to ensure that its permitted subcontractors, as defined in Item 2 above, have been background screened as required in this section prior to performing any services under this Agreement on County Park Property. Contractor will not be subject to immediate termination in the event County determines a violation of this Section was outside the reasonable control of contractor and contractor has demonstrated to County compliance with the requirements of this Section.
9. County may terminate this contract for cause if contractor fails to provide the monthly Affidavit to County as provided for under Item 5 above, and contractor does not cure said breach within five (5) days of Notice provided to contractor.

Supplier: **PVS Technologies**

GENERAL CONDITIONS
Quotaon R equests and Invitaons t o Bid

These General Condions apply to all Quotaon Requests and Invitaons to Bid (each a sollicitaon) issued by Broward County (the County) unless the County deletes, supersedes, or modifies any of these General Condions for a parcular sollicitaon by indicang such change in the Special Instrucons to Vendors. The submission by any vendor (Vendor) of a response to the sollicitaon (response) constut es Vendor s offer to the County to contract with the County and includes as a material part of that offer Vendor s agreement that these General Condions, along with all other provisions included in the sollicitaon and the pricing stated in Vendor s response, will constut e the contract between the Vendor awarded the sollicitaon (Contractor) and the County, and shall prevail over any conflicng provision in any quotaon, standard form contract, or other document of the Contractor, regardless of any language in such document(s) to the contrary. Any modificaon to these General Condions or the language of the sollicitaon by Vendor is prohibited, unenforceable, and may render Vendor s response nonresponsive.

The Broward County Procurement Code (Procurement Code), Chapter 21 of the Broward County Administrav e Code, is applicable to this sollicitaon, and can be obtained from the Purchasing Division s website at: www.broward.org/purchasing. Submission of a response constut es Vendor s agreement to be bound by the Procurement Code as applied to this sollicitaon.

A. GENERAL PROVISIONS

1. Effect of Vendor s Signature on Vendor s Response.

By Vendor including its digital or electronic signature on the response:

- (a) Vendor represents and certfies that the representaons in Secon A.2 of these General Condions ar e true and accurate;
- (b) Vendor acknowledges, accepts, and agrees that the sollicitaon is g overned by the Terms and Condions of the Sollicit aon s tated herein; and
- (c) **VENDOR ACKNOWLEDGES, ACCEPTS, AND AGREES THAT, IF AWARDED THE SOLICITATION BY THE COUNTY S ACCEPTANCE OF VENDOR S OFFER AS SET FORTH IN ITS RESPONSE, VENDOR IS LEGALLY BOUND TO THESE GENERAL CONDITIONS, SPECIAL INSTRUCTIONS, AND THE SPECIFICATIONS OF THIS SOLICITATION, INCLUDING WITHOUT LIMITATION THE TERMS AND CONDITIONS OF CONTRACT STATED HEREIN.**

2. Vendor Representaons and Cerfic aons.

Vendor represents and certfies the f ollowing:

- (a) The individual subming` the response is authorized to sign on Vendor s behalf and has actual legal authority to bind Vendor to the sollicitaon s terms. Vendor acknowledges and agrees that electronic signatures or digital signatures shall have the same legal effect as a handwritten signature.

(b) Vendor's response is made without prior understanding, agreement, or connection with any other vendor submitting a response to the solicitation regarding either vendor's response, and is in all respects fair and without collusion or fraud.

(c) Vendor is neither delinquent in payment of any taxes, fees, fines, contractual debts, judgments, or any other debts due and owed to the County, nor in default of any contractual or regulatory obligation to the County.

(d) No owner, principal, officer, director, or member of Vendor is or was an owner, principal, officer, director, or member in any other firm that was suspended or debarred from doing business with the County within the last three (3) years, unless otherwise noted in Vendor's response.

(e) All statements in Vendor's response are accurate, true, and correct. Vendor acknowledges that any inaccurate, untruthful, or incorrect statement made in its response may be used by the County as a basis for rejection; rescission of contract award; or termination of the contract; and may also serve as the basis for suspension and/or debarment of Vendor pursuant to the Procurement Code.

(f) Vendor represents and warrants that it possesses the knowledge, skill, experience, and financial capability required to provide and perform all goods and services required under the solicitation and that each person and entity that will provide goods or services under the contract is duly qualified to perform such services by all appropriate governmental authorities, where required, and is sufficiently experienced and skilled in the area(s) for which such person or entity will render such goods or services.

B. TERMS AND CONDITIONS OF THE SOLICITATION

1. Responses.

Responses must be submitted electronically through the County's designated electronic bidding system (EBS). It is Vendor's responsibility to ensure its response is submitted and received through the EBS by the date and time specified in the solicitation. The County will not consider responses received by other means or after the time that solicitations are due. All time frame references are to Eastern Time. The official time for electronic submissions is the EBS's servers, as synchronized with the atomic clock. Any response that seeks to modify or take exception to the official time shall be deemed non-responsive.

The County is a public agency subject to Chapter 119, Florida Statutes. Any material submitted in Vendor's response is a public record available for public inspection and copying pursuant to Section 119.07, Florida Statutes. If Vendor contends any material constitutes or contains trade secrets or is otherwise exempt from disclosure under Florida public records laws (collectively, Trade Secret Materials), Vendor must separately submit and conspicuously label the Trade Secret Materials as EXEMPT FROM PUBLIC RECORD PRODUCTION TRADE SECRET. Unless submitted in accordance with this paragraph, Vendor waives any claim of confidentiality or trade secret with respect to any and all information included in the Vendor's response. If a third party submits a public records request for Trade Secret Materials, the County shall refrain from disclosing the Trade Secret Materials unless otherwise ordered by a court of competent jurisdiction or authorized in writing by the Vendor, and Vendor must indemnify and defend

County and its employees, officers, and agents from any and all claims, causes of action, losses, fines, penalties, damages, judgments, and liabilities of any kind, including attorneys fees, litigation expenses, and court costs, relating to the nondisclosure of the Trade Secret Materials in response to a public records request by a third party.

2. Withdrawal.

Unless otherwise expressly permitted under the Procurement Code, Vendors may not withdraw their responses after the deadline for responses to the solicitation until 120 days after the deadline for filing responses to the solicitation. Any response that seeks to modify or take exception to this provision shall be deemed nonresponsive. Violation of this section may subject Vendor to suspension or debarment, and shall entitle the County to execute on Vendor's posted bid security.

3. Bid Opening (Invitations to Bid only).

All responses to Invitations to Bid shall be publicly opened in the public domain or as otherwise designated in the solicitation. The Purchasing Division will decrypt responses received in the EBS immediately following the deadline for bid responses.

4. Cancellation of Solicitation.

The Director of Purchasing may cancel a solicitation at any time before the deadline for responses.

5. Addenda.

The County reserves the right to amend this solicitation prior to the deadline for Vendor responses by issuing written addenda to the solicitation. If, upon review, a Vendor finds a nonclerical error in an addendum, that Vendor must contact the Purchasing Division immediately, prior to opening date, to allow the County to review the alleged error and to issue any clarification, if the County determines that a clarification is necessary. Vendors are responsible for obtaining and reviewing each addendum prior to the deadline for submission of responses to the solicitation. The terms of all addenda are incorporated into the Terms and Conditions of the Solicitation.

6. Prices.

All responses must include firm prices, which must include all handling, set up, shipping, and inside delivery charges to the destination specified in the solicitation, unless otherwise indicated in the solicitation.

(a) **Certification of Prices:** Vendor certifies that the prices it is proposing in its response are not higher than the prices at which Vendor sells the same goods and/or services in approximately similar quantities, under similar terms and conditions, to any other purchaser.

(b) **F.O.B. Destination:** Unless otherwise specified in the solicitation, prices shall be provided as F.O.B. Destination, with freight, fuel, and all other costs included.

(c) **Taxes:** The County is exempt from federal and Florida taxes on direct purchases of tangible property. The County's tax exemption number will appear on the County's purchase order. Vendor must pay all applicable sales, consumer, land use, or other similar taxes required by law.

(d) **Discounts:** Vendors may offer a cash discount for prompt payment, but such discounts will not be considered by the County in determining the lowest net cost for evaluation purposes unless otherwise stated in the solicitation.

(e) **Mistakes:** Vendors are cautioned to examine all specifications, drawings, delivery instructions, unit prices, extensions, and all other special conditions pertaining to this solicitation. Failure to examine all pertinent documents shall not entitle vendors to relief from any provision or any requirement of this solicitation. Mathematical errors, other than in unit prices, may be deemed clerical errors and are subject to correction by the County at the County's sole discretion. If there is a mistake in the extended price (i.e., unit price multiplied by quantity), the unit price shall govern.

7. Awards.

If a specific basis of award is not established in the Special Instructions to Vendors, the award shall be to the lowest responsive and responsible Vendor. In accordance with Section 287.05701, Florida Statutes, the County may not request documentation or consider a vendor's social, political, or ideological interests when determining if the vendor is a responsible vendor or give preference to a vendor based on the vendor's social, political, or ideological interests. When two or more Vendors offer the same pricing, the Purchasing Division will break the tied responses in accordance with the applicable provisions of the Procurement Code. The County reserves the right to make separate award(s) to one or more Vendors for individual goods/services, groups of goods/services, or all or none or any combination thereof. When a group of goods/services is specified in the solicitation, Vendor must include in its response prices for all items within the group.

A Vendor desiring to offer No Charge on an item in a group of goods/services must so indicate by placing a \$0.00 in the offer field for that item, and enter No Charge in the Notes for Buyer section in the EBS. If a Vendor does not comply with these requirements, its response with respect to that group of goods/services will be deemed incomplete and may be rejected. However, if Vendor(s) do not offer all items within a group, the County may issue an award on one or more items on an item-by-item basis. When a group is indicated for variable quantities and the group shows evidence of unbalanced prices, such solicitation response may be rejected. The Director of Purchasing, or the Broward County Board of County Commissioners (Board), as applicable, reserves the right to waive technicalities and irregularities and to reject any or all responses.

8. Qualifications of Vendors.

The County will only award a contract to a Vendor that is normally engaged in providing the types of commodities, services, or construction specified in the solicitation. Vendors must comply with all applicable state or local business licensing requirements. Vendors must have adequate organization, facilities, equipment, and personnel to ensure prompt and efficient service to the County. The County reserves the right to inspect Vendor's facilities, equipment, personnel, and organization, or to take any other action necessary to determine Vendor's ability to perform in accordance with the solicitation's specifications, terms, and conditions, and Vendor's submittal of its response to the solicitation shall be deemed to constitute Vendor's consent to such inspection. The County will determine whether the evidence of ability to perform is satisfactory,

and reserves the right to reject responses and/or find any Vendor nonresponsible where evidence or evaluation is determined to indicate insufficient or uncertainty regarding capacity or ability to perform. The County may also consider a Vendor's history of any and all types of citations, orders, judgments, and/or violations, including those relating to suspensions, debarments, or environmental regulations, in determining responsibility. Vendors must submit with their response a complete history of all citations and/or violations notices and dispositions thereof. Failure of a Vendor to submit such information may be grounds for rejection of Vendor's response and constitutes grounds for termination of Vendor's contract if awarded the solicitation. Vendor shall notify the County immediately of any citations, orders, judgments, or violations not included in Vendor's response that occur at any time prior to award of the contract.

9. Affiliated Entities.

Each Vendor must disclose in its response the names and addresses of its principals and identify all affiliates of Vendor at any time in the five (5) years preceding the date the solicitation was posted. For purposes of this section: (a) principal is an individual who is an officer or member of Vendor, or an owner of at least 10% of the equity interest of Vendor; (b) affiliate is any entity that directly or indirectly controls, is controlled by, or is under common control with, Vendor or principal(s) of Vendor; and (c) control means (i) ownership, directly or indirectly, of fifty percent (50%) or more of the shares of stock entitled to vote for the election of directors, in the case of a corporation, or fifty percent (50%) or more of the equity interests in the case of any other type of legal entity, or (ii) status as a general partner in the case of a partnership, or (iii) any other arrangement whereby a party controls or has the right to control the Board of Directors or equivalent governing body of the entity, or (iv) in the case of a corporation or a partnership, if the abovementioned applicable level of ownership or control is prohibited in any country where the entity is organized or maintains its headquarters or principal place of business, then the maximum ownership or control level for the entity permitted in that country.

10. Resolution of Protested Solicitations and Proposed Awards.

In accordance with Sections 21.65 through 21.67 of the Broward County Procurement Code, if a Vendor intends to protest a solicitation or proposed award of a contract the following shall apply:

(a) Any protest concerning the solicitation's specifications or requirements (or any addendum thereto) must be received by the Director of Purchasing on or before 5:00 p.m. on the fifth (5th) business day after the solicitation or addendum is posted on the EBS.

(b) Any protest concerning a proposed award or ranking must be received by the Director of Purchasing on or before 5:00 p.m. on the fifth (5th) business day after the proposed award or ranking is posted on the Purchasing Division's website.

(c) The protest must be made in writing and must specify the grounds for protest in accordance with Section 21.66 of the Procurement Code.

(d) For purposes of this section, a business day is defined as Monday through Friday between 8:30 a.m. and 5:00 p.m., except County holidays. Failure to timely file a protest within the time frames specified constitutes a waiver of the right to protest. Pursuant to Section 21.71 of the Procurement Code, the filing of a protest is a remedy that must be exhausted before filing an appeal or civil action.

(e) As a condition of initiating any protest, the protestor must present the Director of Purchasing with a filing fee. The filing fee is calculated based on the estimated contract amount. For purposes of the protest, the estimated contract amount shall be the contract amount submitted by the protestor. If no contract amount was submitted, the estimated contract amount shall be the County's estimated contract price for the project. The County will accept money order, certified check, or cashier's check, payable to Broward County Board of County Commissioners. The filing fee will be refunded if the protestor prevails in the protest. The filing fees are as follows:

Estimated Contract Amount	Filing Fee
Mandatory Bid Amount up to \$250,000	\$500
\$250,001 - \$500,000	\$1,000
\$500,001 - \$5 million	\$3,000
Over \$5 million	\$5,000

11. Public Entity Crimes; Public Business Discrimination; Foreign Country of Concern.

Vendor represents that the submission of its response to this solicitation does not violate the Public Entity Crimes Act, Section 287.133, Florida Statutes. Vendor represents that it has not been placed on the discriminatory vendor list as provided in Section 287.134, Florida Statutes, and that it is not a scrutinized company pursuant to Section 215.473, Florida Statutes. Vendor represents and certifies that it is not ineligible to contract with the County on any of the grounds stated in Section 287.135, Florida Statutes. Vendor represents that it is, and if awarded the contract will remain for the duration of the contract, in full compliance with Section 286.101, Florida Statutes. Violation of this section shall result in cancellation of Vendor's contract, and may result in suspension and/or debarment.

12. Prohibited Telecommunications Equipment.

Vendor represents and certifies that it and its applicable subcontractors do not use any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, as such terms are used in 48 CFR 52.204-24 through 52.204-26. Vendor represents and certifies that, if awarded this solicitation, Vendor and its applicable subcontractors shall not provide or use such covered telecommunications equipment, system, or services for the duration of any contract resulting from this solicitation.

13. Criminal History Screening Process.

By submission of its response to this solicitation, Vendor represents and certifies that it has implemented, or will implement upon award of the contract, policies, processes, and procedures that preclude inquiry into an employment applicant's criminal history until the applicant is selected as a finalist and interviewed for the position.

14. Rules of Foreign Concern.

If Vendor or any subcontractor will have access to an individual's personal identifying information under the awarded contract, Vendor represents and certifies: (i) Vendor is not owned by the government of a foreign country of concern; (ii) the government of a foreign country of concern does not have a controlling interest in Vendor; and (iii) Vendor is not organized under the laws of and does not have its principal place of business in, a foreign country of concern. Vendor and any subcontractor that will have access to personal identifying information shall submit to County executed affidavit(s) under penalty of perjury, in a form approved by County attesting that the entity does not meet any of the criteria in Section 287.138(2), Florida Statutes. Terms used in this section that are not otherwise defined in this solicitation shall have the meanings ascribed to such terms in Section 287.138, Florida Statutes.

15. Construction Apprenticeship Program (Construction Contracts only).

If the solicitation is for a construction contract as defined in Section 26-9 of the Broward County Code of Ordinances, Vendor represents and certifies that it shall comply for the duration of the contract, if awarded, with Sections 26-8 through 26-11 of the Broward County Code of Ordinances regarding the Construction Apprenticeship Program.

16. Cone of Silence Ordinance (Invitations to Bid).

The Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances, provides that for certain time periods, Vendors and their representatives may not communicate regarding the solicitation with any County Commissioner or their staff or with certain County personnel. However, Vendors may communicate with a representative of the Office of Economic and Small Business Development (OESBD) (telephone (954) 357-6400) at any time regarding a solicitation or regarding participation of Small Business Enterprises, County Business Enterprises, Disadvantaged Business Enterprises, or Airport Concessions Disadvantaged Business Enterprises in a solicitation. The Cone of Silence also permits communication with certain other specific County employees (for more information, refer to Section 1-266, Broward County Code of Ordinances). Any violation of the Cone of Silence Ordinance by Vendor or any representative of Vendor, including owner, employee, consultant, lobbyist, or actual or potential subcontractor or subconsultant, may be reported to the County's Office of Professional Standards. If the Office of Professional Standards determines that a violation has occurred, a fine shall be imposed against Vendor as provided in the Broward County Code of Ordinances. Additionally, a determination of violation shall render any award to a Vendor who is found to have violated the Cone of Silence Ordinance voidable, at the sole discretion of the Board.

17. Conflicting Fees.

Vendor certifies it has not paid and will not pay any conflicting fees (sometimes known as a finder's fee) to any person or organization, other than a bona fide employee working solely for Vendor, to secure a contract made pursuant to this solicitation. Violation of this policy may result in termination of any resultant contract and/or possible suspension and/or debarment of Vendor. This provision does not apply to fees paid to an insurance broker in connection with a solicitation to provide insurance coverage to the County.

18. Local Business Tax Receipt Requirements.

Unless exempt under applicable law, any Vendor maintaining a business address within Broward County must have a current Broward County Local Business Tax Receipt issued by the Broward County Records, Taxes and Treasury Division (Business Tax Receipt) prior to recommendaon for award. Unless exempt, Vendors that do not have a current Business Tax Receipt may be deemed nonresponsive to this sollicitaon. For further informaon on obtaining or renewing a Local Business Tax Receipt, contact the Records, Taxes and Treasury Division at (954) 357-6200.

19. Dun & Bradstreet Report Requirement.

The County may review any Vendor s Dun & Bradstreet rang and payment performance to assist in determining a Vendor s responsibility regarding this sollicitaon.

20. Samples.

Samples or drawings, when required, shall be provided to the County free of charge. If not mula ted or destroyed in the examinaon, Vendor will be notified to remove same at their expense. If samples are not removed within thirty (30) calendar days after wri en notice to Vendor, they shall be considered as abandoned, and the County shall have the right to dispose of them as its own property.

21. Or Equal Clause.

Whenever a material, arcle, or piece of equipment is identified in the sollicitaon by reference to a manufacturer or brand name, trade name, catalog number, or otherwise, any such reference is intended merely to establish a standard; and, unless such idenficaon is followed by the words no substuaon is permitted, any material, arcle, or piece of equipment of any other manufacturer or brand that will perform or serve the requirements of the sollicitaon will be considered equally acceptable, provided that the material, arcle, or piece of equipment so proposed is, in the sole opinion of the County, equal in substance, quality, and funcon t o the material, arcle, or piece of equipmen t specified in the sollicitaon.

22. Legal Requirements.

Applicable provisions of all federal, state, and local laws, ordinances, rules, and regulaons, including the Procurement Code, shall govern development, submi al, and evaluaon of responses, and shall govern any and all claims and disputes that may arise between Vendor(s) and the County or its officers, employees, and/or authorized representav es. Lack of knowledge by any Vendor of any applicable law, rule, or regulaon shall not constitute a recognizable defense against the legal effect thereof.

C. TERMS AND CONDITIONS OF CONTRACT

1. Contract Period.

The contract period shall start and terminate as indicated in the sollicitaon s Special Instrucons to Vendors. If no contract period is stated in the Special Instrucons to Vendors, the contract period shall start upon the date of award and end three (3) years later, unless extended by mutual consent of County and Contractor for up to two (2) addional one (1) year renewal terms.

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The total contract period, inclusive of the above-referenced renewal terms, shall not exceed five (5) years, unless renewed or extended pursuant to action by the Board, or as otherwise authorized by Section 21.53 of the Procurement Code. The continuation of the contract beyond the end of any County fiscal year is subject to both the appropriation and the availability of funds in accordance with Chapter 129, Florida Statutes and, if applicable, Chapter 212, Florida Statutes.

If the Director of Purchasing determines to renew the contract as set forth above, the County will provide Contractor with notice of the County's intent to renew in advance of the contract expiration date. If Contractor consents to the renewal or otherwise confirms the request to renew (which may be done electronically), the contract shall be renewed for the stated period. All prices, terms, and conditions of the contract shall remain firm for any renewal period unless subject to price adjustment expressly stated in the solicitation. If the Director of Purchasing does not renew the contract, or if no further renewal of the contract period is available, Contractor nonetheless shall, if directed in writing by the Director of Purchasing, continue contract performance for an extension period not exceeding ninety (90) days beyond the contract expiration date. Contractor shall be compensated for such performance during the extension period at the rate in effect when the Director of Purchasing directed Contractor to continue performance for an extended period beyond the contract expiration date.

2. Orders and Quantities.

The contract may be for: (a) a definite quantity; (b) an open-end/indefinite quantity; or (c) all of the County's requirements. The Special Instructions specify the applicable contract type and the associated terms and conditions, which shall govern the contract.

3. Invoice and Payment.

Contractor may submit invoices for payment no more often than on a monthly basis, but only after the goods or services for which the invoices are submitted have been delivered or completed. If subcontractor or supplier fees or costs are included in a Contractor invoice to the County, Contractor must submit a Certification of Payments to Subcontractors and Suppliers with each such invoice in the form provided by the County. Contractor must pay subcontractors and suppliers within fifteen (15) days following receipt of payment from the County for such subcontracted work or supplies. The certification shall be accompanied by a copy of the notification sent to each unpaid subcontractor listed on the form, if any, explaining the good cause why payment has not been made to that subcontractor.

The County shall pay for all goods and services received and accepted by the County in accordance with the Local Government Prompt Payment Act, Section 218.70, Florida Statutes, and the Prompt Payment Policy, Section 1-51.6, of the Broward County Code of Ordinances. All applications for payment shall be submitted to the address indicated in the purchase order. The County will pay Contractor after receipt, acceptance, and proper invoice is received. Invoices must bear the purchase order number. The County will only accept and pay for goods delivered or services performed by Contractor within the contract period, including any extensions or continued performance as directed by the Director of Purchasing.

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4. Termination.

(a) **Availability of Funds.** In the event funds for the contract are not made available or otherwise allocated by the Board, the County may terminate the contract upon thirty (30) days prior written notice to Contractor without penalty or liability for such termination. The Board shall be the final authority as to availability of funds and how such available funds are to be allocated and expended.

(b) **Nonperformance.** The County may terminate the contract for cause if Contractor is in breach and does not correct the breach within ten (10) days after written notice from the County Contract Administrator identifying the breach. Cause for termination shall include, but not be limited to, failure to suitably perform the work; failure to suitably deliver goods in accordance with the specifications and instructions in this solicitation; failure to continuously perform the work in a manner calculated to meet or accomplish the objectives of the County as set forth in this solicitation; or multiple breaches of the provisions of the contract notwithstanding whether any breach was previously waived or cured.

(c) **For Convenience.** The County may terminate the contract for convenience upon no less than thirty (30) days written notice. If the contract is terminated for convenience, Contractor shall be paid for any goods properly delivered and services properly performed prior to the termination date specified in the notice from the County. However, upon being notified of the County's election to terminate, unless directed otherwise in writing by the County, Contractor shall cease any deliveries, shipment, or carriage of goods, and refrain from performing further services or incurring additional expenses under the terms of the contract. In no event will payment be made for lost or future profits or damages for Contractor's reliance on continued performance of the contract beyond the effective date of the termination for convenience. Contractor acknowledges and agrees that it has received good, valuable, and sufficient consideration from the County for the County's right to terminate the contract for convenience, the receipt and adequacy of which are hereby acknowledged.

5. Conditions and Packaging.

Unless otherwise stated in the solicitation, or specifically ordered from an accepted price list, deliveries must consist only of new and unused goods and must be the current standard production model available at the time of Contractor's response. The goods must be suitably packaged for shipment by common carrier. Each container, or multiple units or items otherwise packaged, must bear a label or otherwise legible marking stating the name of Contractor (or the manufacturer or supplier), the purchase order number, and any other information required by the solicitation's specifications.

6. Safety Standards.

Unless otherwise specified in the solicitation, all goods and services, including manufactured items and fabricated assemblies, shall comply with applicable requirements of the Occupational Safety and Health Act (OSHA) and all standards thereunder. All sources of energy associated with machinery/equipment purchased shall be capable of being locked-out in accordance with OSHA 29 CFR 1910.147, Hazardous Energy Control. Pursuant to OSHA 29 CFR 1910.1200, Hazard Communication Standard, and Chapter 442, Florida Statutes, Occupational Safety and Health, any chemical substance provided or delivered pursuant to this solicitation to the County

must be compliant with the Global Harmonized System (GHS) for Hazard Communication accompanied by a Safety Data Sheet (SDS) consisting of 16 sections, which SDS must be submitted to the Broward County Risk Management Division, 115 South Andrews Avenue, Room 218, Fort Lauderdale, Florida 33301-1803.

7. Rejection of Nonconforming Items.

The County may withhold acceptance of or reject any items that the County determines do not meet the specification requirements of the solicitation. Upon written notice from County, Contractor must remove the rejected items at its own expense within five (5) calendar days after the County's notice of rejection and then replace them at its own expense with items that meet the specification requirements of the solicitation. Any items not removed by Contractor within thirty (30) days after the County's notice of rejection shall be considered abandoned, and the County may dispose of them in any manner it sees fit. The County shall not be required to give written notice of rejection with respect to foodstuffs, medication, or other perishable goods. With respect to foodstuffs, medication, and other perishable goods, the County may provide verbal notification of rejection, in response to which Contractor must immediately remove and replace the rejected goods at its sole expense. Contractor's failure to provide conforming items, failure to meet the time frames for removal and replacement specified in this section may result in Contractor being found in breach of contract.

8. Inspection, Acceptance, and Title.

Inspection and acceptance will be at the delivery destination specified in the solicitation, unless otherwise stated in the purchase order. Title and risk of loss or damage to all items shall be the responsibility of Contractor until such items are accepted by the County.

9. Governmental Restrictions and Prohibited Covered Telecommunications Equipment.

In the event any applicable law or regulation requires substitution of the goods or services required by the solicitation (or alteration of the material quality, workmanship, or performance of such goods or services) prior to delivery of same, Contractor must immediately notify the County in writing of the specific law or regulation requiring such substitution or alteration. The County reserves the right to accept any such substitution or alteration, including any price adjustments occasioned thereby, or to terminate the contract without liability and at no further expense to the County. For the duration of the contract, neither Contractor nor its subcontractors shall use any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, as such terms are used in 48 CFR 52.204-24 through 52.204-26. Additionally, Contractor represents and certifies that if Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during the term of the contract, or if Contractor is notified of such by a subcontractor at any tier or by any other source, Contractor shall promptly report the information in 48 CFR 52.204-25(d) (2) to the County.

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10. Insurance.

Contractor shall, at its sole expense, maintain the minimum insurance coverages required in the solicitation in accordance with the terms and conditions of this section. Contractor shall maintain insurance coverage against claims relating to any act or omission by Contractor, its agents, representatives, employees, or subcontractors in connection with the contract. Contractor shall ensure that Broward County is listed and endorsed as an additional insured on all required policies. Contractor shall ensure that all required insurance coverages remain in full force and effect for the duration of the contract and until all performance required by Contractor has been completed. Contractor shall ensure that all required insurance policies are issued by insurers: (1) assigned an A. M. Best rating of at least A- with a Financial Size Category of at least Class VII; (2) authorized to transact insurance in the State of Florida; or (3) a qualified eligible surplus lines insurer pursuant to Sections 626.917 or 626.918, Florida Statutes, with approval by the County's Risk Management Division. Contractor shall be solely responsible for and shall pay any deductible or self-insured retention applicable to any claim against the County. Unless prohibited by the applicable policy, Contractor waives any right to subrogation that any of Contractor's insurers may acquire against the County and agrees to obtain same in an endorsement of Contractor's insurance policies.

11. Indemnification.

(a) **Contracts other than construction contracts and professional services contracts (as defined in Sections 725.06 and 725.08, Florida Statutes):** Contractor shall indemnify, hold harmless, and defend the County and all of the County's current, past, and future officers, agents, and employees (collectively, Indemnified Party) from and against any and all causes of action, demands, claims, losses, liabilities, and expenditures of any kind, including attorneys fees, court costs, and expenses, including through the conclusion of any appellate proceedings, raised or asserted by any person or entity not a party to the contract, and caused or alleged to be caused, in whole or in part, by breach of this contract by Contractor or by any intentional, reckless, or negligent act or omission of Contractor, its officers, employees, or agents, arising from, relating to, or in connection with the contract (collectively, a Claim). If any Claim is brought against an Indemnified Party, Contractor shall, upon written notice from the County, defend each Indemnified Party against each such Claim by counsel satisfactory to the County or, at the County's option, pay for an attorney selected by the County Attorney to defend the Indemnified Party. The obligations of this section shall survive the expiration or earlier termination of this solicitation and the contract term. If considered necessary by the Contract Administrator and the County Attorney, any sums due Contractor under the contract may be retained by the County until all Claims subject to this indemnification obligation have been selected or otherwise resolved. Any amount withheld shall not be subject to payment of interest by the County.

(b) **Construction contracts and professional services contracts (as defined in Sections 725.06 and 725.08, Florida Statutes):** Contractor shall indemnify and hold harmless the County and its current, past, and future officers and employees from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of Contractor or other persons employed or utilized by Contractor in the performance of the contract. The provisions of this section shall survive the expiration or earlier termination of the contract.

To the extent considered necessary by the Contract Administrator and the County Attorney, any sums due Contractor under the contract may be retained by the County until all of the County's claims subject to this indemnification obligation have been selected or otherwise resolved, and any amount withheld shall not be subject to payment of interest by the County.

12. Notice.

Notice to the County or Contractor must be sent via U.S. first-class mail, hand delivery, or commercial overnight delivery, each with a contemporaneous copy via email, to the addresses listed below (for the County) or stated in the solicitation (for Contractor), and shall be effective upon mailing or hand delivery (provided the contemporaneous email is also sent). The notice address for Contractor shall be the business address and any of the authorized contact(s) specified in the Vendor Questionnaire. The notice address for the County shall be as follows:

Broward County
Director, Broward County Purchasing Division
115 S. Andrews Avenue, Room 212
Fort Lauderdale, Florida 33301-1801
Email: PurchasingSupport@broward.org

The notice addresses shall remain as set forth in this section unless and until changed by providing notice of such change in accordance with the provisions of this section.

13. Jurisdiction, Venue, Waiver of Jury Trial.

The contract shall be interpreted and construed in accordance with and governed by the laws of the State of Florida. The exclusive venue for any lawsuit arising from, related to, or in connection with this solicitation or contract shall be in the state courts of the Seventeenth Judicial Circuit in and for Broward County, Florida. If any claim arising from, related to, or in connection with this solicitation or contract must be litigated in federal court, the exclusive venue for any such lawsuit shall be in the United States District Court or United States Bankruptcy Court for the Southern District of Florida. **BY ENTERING INTO THE CONTRACT, EACH PARTY HEREBY EXPRESSLY WAIVES ANY RIGHTS IT MAY HAVE TO A TRIAL BY JURY OF ANY CIVIL LITIGATION RELATED TO THE CONTRACT.**

14. Patents and Royalties.

Contractor, without exception, shall indemnify, hold harmless, and defend the County, and all of the County's current, past, and future officers, agents, and employees, from liability of any nature or kind, including but not limited to attorneys fees, costs, and expenses, for or on account of any of any claims by third parties arising out of any copyrighted, trademarked, invention (patented or unpatented), process, or article that is manufactured, used, or otherwise required or occasioned by performance of the contract by Contractor or by the County. Contractor is solely responsible for any and all royalties, fees, or costs resulting or arising from use of any design, device, or materials covered by letters, patent, or copyright. The County shall not be liable or pay any royalties, fees, or costs in connection with the contract or the goods or services provided pursuant to the contract. This provision shall survive the expiration or earlier termination of the contract.

15. Assignment; Subcontractors.

Except for subcontracting approved by the County in advance, neither the contract nor any right or interest in it may be assigned, transferred, subcontracted, or encumbered by Contractor without the prior written consent of the County. Any assignment, transfer, encumbrance, or subcontract in violation of this section shall be void and ineffective, constitute a breach of the contract, and permit the County to immediately terminate the contract, in addition to any other remedies available to the County at law or in equity. The County may condition any consent required under this section upon review of any documentation reasonably requested by the County and/or payment by Contractor of a fee in an amount specified by the County to cover costs incurred by the County in evaluating the transaction for which consent is requested.

16. Equal Employment Opportunity.

Contractor shall not discriminate against any employee or applicant for employment based on race, religion, age, color, sex, gender, national origin, sexual orientation (including as provided in Broward County Code, Chapter 16), marital status, political affiliation, disability, or physical or mental disability. Contractor shall also take affirmative action to ensure that employees are treated during their employment, without regard to their race, religion, age, color, sex, gender, national origin, sexual orientation, marital status, political affiliation, disability, or physical or mental disability. Such actions shall include, but not be limited to the following: employment, promotion, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, as well as selection of training, including apprenticeship. Contractor agrees to post notices setting forth the provisions of this nondiscrimination clause in conspicuous places available to employees and applicants for employment.

Contractor must include the foregoing requirements of this Section C.16 in its contracts with any subcontractors or subconsultants that may perform work required by this solicitation, except that any project assisted by U.S. Department of Transportation funds shall comply with the nondiscrimination requirements in 49 CFR Parts 23 and 26, as applicable. Contractor must ensure subcontractors and subconsultants, if any, are aware and comply with the requirements of this section. Failure to comply with above requirements is a material breach of the contract and may result in contract termination or such other remedy as the County deems appropriate, all of such remedies being cumulative.

17. Criminal History Screening. [Generally applicable to contracts over \$100,000]

Unless exempted under Section 26-125, Broward County Code of Ordinances, Contractor certifies and represents that it shall comply with Section 26-125(d) of the Broward County Code of Ordinances prohibiting inquiry into the criminal history of an employment applicant until the applicant is selected as a finalist and interviewed for the position. Violation of this section shall constitute a material breach of contract, entitling Broward County to pursue any remedy permitted under the contract or applicable law.

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18. Purchase by Other Governmental Agencies.

Contractor understands and agrees that any other governmental unit may enter into a contract with Contractor on the same terms and conditions as Contractor's contract with the County. However, any such governmental unit must establish its own contract with Contractor, place its own orders, issue its own purchase orders, be separately invoiced by Contractor, make its own payments, and issue its own exemptions as required by Contractor. Contractor understands and agrees that the County is not and will not be a legally bound party to any contractual agreement made between any other governmental unit and Contractor as a result of this solicitation, and that no other governmental unit is an implied or intended third-party beneficiary of the contract between the County and Contractor.

19. Public Records.

Pursuant to Chapter 119, Florida Statutes, Contractor and all subcontractors and subconsultants retained by Contractor for performance of the contract, shall comply with Florida's Public Records Law, including as follows:

- (a) Keep and maintain public records required by the County to perform the services;
- (b) Upon request from the County, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;
- (c) Ensure that public records that are exempt or confidential and exempt from public record requirements are not disclosed except as authorized by law for the duration of the contract and following completion or termination of the contract if the records are not transferred to the County; and
- (d) Upon completion or termination of the contract, transfer to the County, at no cost, all public records in possession of Contractor or keep and maintain public records required by the County to perform the services. If Contractor transfers the records to the County, Contractor shall destroy any duplicate public records that are exempt or confidential and exempt. If Contractor keeps and maintains the public records, Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County upon request in a format that is compatible with the information technology systems of the County.

A request for public records regarding the contract must be made directly to the County, who will be responsible for responding to any such public records requests. Contractor must provide any requested records to the County to enable the County to respond to the public records request.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THE CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (954) 357-6066, PURCHASINGRECORDS@BROWARD.ORG, 115 S. ANDREWS AVE., SUITE 212, FORT LAUDERDALE, FLORIDA 33301.

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Any material submitted to the County that Contractor contends constitutes or contains trade secrets or is otherwise exempt from production under Florida public records laws (including Chapter 119, Florida Statutes) (Trade Secret Materials) must be separately submitted and conspicuously labeled EXEMPT FROM PUBLIC RECORD PRODUCTION TRADE SECRET. In addition, Contractor must, simultaneous with the submission of any Trade Secret Materials, provide a sworn declaration or affidavit from a person with personal knowledge attesting that the Trade Secret Materials constitute trade secrets under Section 688.002, Florida Statutes, and stating the factual basis for same. If a third party submits a request to the County for records designated by Contractor as Trade Secret Materials, the County shall refrain from disclosing the Trade Secret Materials, unless otherwise ordered by a court of competent jurisdiction or authorized in writing by Contractor. Contractor must indemnify and defend the County and its employees, officers, and agents from any and all claims, causes of action, losses, fines, penalties, damages, judgments, and liabilities of any kind, including attorneys fees, litigation expenses, and court costs, relating to the nondisclosure of any Trade Secret Materials in response to a records request by a third party.

20. Audit Right and Retention Records.

The County shall have the right to audit the books, records, and accounts of Contractor and its subcontractors that are related to the contract. Contractor and its subcontractors shall keep such books, records, and accounts as may be necessary to record complete and correct entries related to the contract and performance under the contract. All such books, records, and accounts shall be kept in written form, or in a form capable of conversion into written form within a reasonable time, and upon request to do so, Contractor or its subcontractor shall make same available in written form at no cost to the County. Contractor shall ensure that the requirements of this section are included in all agreements with its subcontractor(s).

Contractor shall preserve and make available, at reasonable times within Broward County, Florida, for examination and audit, all financial records, supporting documents, statistical records, and any other documents pertinent to the contract for at least three (3) years after expiration or termination of the contract or until resolution of any audit findings, whichever is longer. Contractor shall make all such records and documents available electronically in common file formats or via remote access if and to the extent requested by the County. Any audit or inspection pursuant to this section may be performed by any County representative (including any outside representative engaged by the County). Contractor hereby grants the County the right to conduct such audit or review at Contractor's place of business, if deemed appropriate by the County, with seventy-two (72) hours advance notice. Contractor shall provide the County with reasonable access to Contractor's facilities, and the County shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this contract.

Any incomplete or incorrect entry in such books, records, and accounts shall be a basis for the County's disallowance and recovery of any payment made by the County based upon such entry. If an audit or inspection in accordance with this section reveals overpricing or overcharges to the County of any nature by Contractor in excess of five percent (5%) of the total contract billings reviewed by the County, in addition to making adjustments for the overcharges, Contractor shall

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pay the reasonable cost of the County's audit. Any adjustments or payments due as a result of such audit or inspection shall be made within thirty (30) days after presentation of the County's findings to Contractor.

21. Ownership of Documents.

All finished or unfinished documents, studies, surveys, drawings, maps, models, photographs, specifications, and reports prepared or provided by Contractor in connection with the contract shall become the property of the County upon the expiration or termination of the contract, whether the project for which they are made is completed or not. Contractor must deliver all such materials to the Contract Administrator prior to contract expiration or within fifteen (15) days after Contractor's receipt of a written notice of termination. The County may withhold any payments due to Contractor until Contractor complies with the provisions of this section.

22. Special Notice.

In accordance with 29 CFR 1926.1101(k)(2), Contractor is hereby notified of the presence of asbestos containing material and/or presumed asbestos containing material at some Broward County locations.

23. Contractor Responsibilities; Time is of the Essence; Waiver; Remedies.

Unless otherwise stated in the solicitation, Contractor will be responsible for the provision, installation, and performance of all equipment, materials, goods, and services offered in its response, even if such materials or equipment is not of their own manufacture or such services are not being performed by Contractor's own employees. Time is of the essence in performing the duties, obligations, and responsibilities required by Contractor under the contract. The County's election not to enforce any particular breach(es) does not waive the County's right to enforce any other breach(es) and shall not be construed as a modification of the contract. All remedies provided in these General Conditions are cumulative.

24. Warranties and Guarantees.

Contractor shall obtain all applicable manufacturers warranties and guarantees of the equipment and materials required by this solicitation and resulting orders under this solicitation for the benefit of, and in the name of, Broward County. Contractor shall deliver documentation of such warranties and guarantees to the point of delivery specified in the solicitation.

25. Independent Contractor.

The relationship between the County and Contractor is an independent contractor relationship, and nothing in the contract shall constitute or create a partnership, joint venture, or any other relationship between the Parties. In providing goods or services as specified in the solicitation, neither Contractor nor its agents shall act as officers, employees, or agents of the County. Contractor shall not have the right to bind the County to any obligation not expressly undertaken by the County under the contract.

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26. Regulatory Capacity.

Notwithstanding the fact that the County is a political subdivision with certain regulatory authority, the County's performance under the contract is as a Party to the contract and not in its regulatory capacity. If the County exercises its regulatory authority, the exercise of such authority and the enforcement of any rules, regulations, laws, and ordinances shall be made pursuant to its regulatory authority as a governmental body separate and apart from the contract, and shall not be attributable in any manner to the County as a party to the contract.

27. Sovereign Immunity.

Except to the extent required by law, nothing herein is intended to serve as a waiver of sovereign immunity by the County nor shall anything included herein be construed as consent by the County to be sued by third parties in any matter arising out of the contract.

28. Third-Party Beneficiaries.

Neither Contractor nor the County intends to primarily or directly benefit a third party by entering into the contract. Therefore, the Parties acknowledge that there are no third-party beneficiaries to the contract and that no third party shall be entitled to assert a right or claim against either of them based upon the contract.

29. Compliance with Laws; Code Requirements.

Contractor and the goods and services provided by Contractor pursuant to the contract must comply with all applicable federal, state, and local laws, codes, ordinances, rules, and regulations including, without limitation, Americans with Disabilities Act, 42 U.S.C. 12101, Section 504 of the Rehabilitation Act of 1973, and any related federal, state, or local laws, rules, and regulations. Contractor and its subcontractors must be familiar and comply with all applicable federal, state, county, municipal, and local laws, rules, regulations, and codes applicable to performance of the contract. Contractor must ask for and receive any required inspections relevant to its performance of the contract.

30. E-Verify.

Contractor represents that Contractor and each subcontractor has registered with and uses the E-Verify system maintained by the United States Department of Homeland Security to verify the work authorization status of all newly hired employees in compliance with the requirements of Section 448.095, Florida Statutes, and that entry into the contract will not violate that statute. If Contractor violates this section, County may immediately terminate the contract for cause and Contractor shall be liable for all costs incurred by County due to the termination.

31. Ownership Disclosure Form.

By January 1 of each year, Contractor must submit, and cause each of its subcontractors to submit, an Ownership Disclosure Form (or such other form or information designated by the County), available at <http://www.broward.org/econdev/Pages/forms.aspx>, identifying the ownership of the entity and indicating whether the entity is majority-owned by persons filing specified classifications.

32. Restricons on Use of Certain Plastics and Products on County property.

Contractor shall not sell or provide for use on County property expanded polystyrene food service articles (e.g., Styrofoam), unencapsulated expanded polystyrene products, single-use plastic beverage straws, or single-use plastic straws, as set forth in more detail in Section 27.172, Broward County Administrative Code.

33. Iron and Steel Products

If this contract is for a public works project as defined in Section 255.0993, Florida Statutes, then any iron or steel product permanently incorporated in the project must be produced in the United States, unless specifically exempted in writing by the County Contract Administrator in accordance with Section 255.0993, Florida Statutes.

34. Anti-Human Trafficking

Contractor hereby attests that Contractor does not use coercion for labor or services, as such terms are defined in Section 787.06, Florida Statutes; under penalties of perjury, an authorized representative of Contractor declares that they have read the foregoing statement and that the facts stated in it are true.

35. Amendments; Severability.

All changes to purchase orders shall be by issuance of a change order or amended purchase order by the County. Any modification or change to the contract must be by written amendment signed by Contractor and the County. If any part of the contract is found to be unenforceable by any court of competent jurisdiction, that part shall be deemed severed from the contract and the balance of the contract shall remain in full force and effect.

Rev. 7.1.2024
#1040409.14

Supplier: PVS Technologies

**Procurement Preferences for
Broward County Small Business Enterprises and County Business Enterprises**

This should be returned with the Vendor's submittal and will be used for informational purposes.

In accordance with Broward County Ordinance, Section 1.81, non-reserved solicitations (for certified Small Business Enterprises (SBEs) or County Business Enterprises (CBEs) and solicitations without any assigned CBE goals, a responding Broward County certified SBE or CBE may be eligible for a procurement preference, in accordance with below:

For Invitations to Bid and Quotation Requests:

If a responsive, responsible bid is received from a certified CBE or SBE that is within ten percent (10%) of the lowest responsive, responsible bid received from a non-certified (SBE or CBE) firm, the SBE or CBE (as applicable) shall be offered the opportunity to match the lowest responsive, responsible bid. If the SBE or CBE firm (as applicable) is responsive and responsible, and matches the lowest responsive, responsible bid, the CBE or SBE firm shall be recommended for award.

For Request for Proposals:

If upon the completion of final rankings by the Evaluation Committee, a non-certified proposer is the highest-ranked proposer, and a responsive, responsible SBE or CBE proposer receives a score that is within five percent (5%) of the score obtained by the non-certified proposer, the highest-ranked responsive, responsible SBE or CBE proposer shall be considered the highest-ranked proposer and shall have the opportunity to proceed to negotiations with the County for award of the contract.

Vendor should indicate below if the firm is a currently certified Broward County SBE and/or CBE firm. If the firm does not indicate it is an SBE or CBE, preference may not be applied based on information received but certification will be verified in the Broward County OESBD [Certified Firm Directory](#). Vendor must be certified at time of solicitation opening (due date).

This does not substitute for certification or application for certification.

- Firm is a Broward County certified SBE.
- Firm is a Broward County certified CBE
- Firm is not a Broward County certified SBE or CBE

Vendor Name **techbids@pvschemicals.com**

For questions regarding the Broward County SBE and CBE certifications, please contact Office of Economic and Small Business Development at 954-357-6400.

Revised May 1, 2021

Supplier: PVS Technologies

VENDOR QUESTIONNAIRE
Quotations and Invitations for Bids

The completed Vendor Questionnaire form should be submitted with the solicitation response. If not submitted with solicitation response, it must be submitted within three business days of County's written request. Failure to timely submit may affect may result in Vendor being deemed non-responsive.

If a response requires additional information, the Vendor should upload a written detailed response; each response should be numbered to match the question number. The completed questionnaire and attached responses will become part of the procurement record. It is imperative that the person completing the form be knowledgeable about the proposing Vendor's business and operations.

1. Legal business name: **PVS Technologies, Inc.**
2. Doing Business As/Fictitious Name (if applicable): **PVS Technologies, Inc.**
3. Federal Employer I.D. no. (FEIN): **38-1949201**
4. Dun and Bradstreet No.: **151369303**
5. Website address (if applicable): **www.pvschemicals.com**
6. Principal place of business address: **10900 Harper Avenue**

Detroit, MI 48213

7. Office location responsible for this project: **PVS Technologies, Inc.**

10900 Harper Avenue

Detroit, MI 48213

8. Telephone no.: **313-921-1200** Fax no.: **313-571-6765**
9. Type of business (check appropriate box):

Corporation (specify the state of incorporation):

Michigan

- Sole Proprietor
- Limited Liability Company (LLC)
- Limited Partnership
- General Partnership (State and County filled in)
- Other – Specify

10. AUTHORIZED CONTACT(S) FOR YOUR FIRM: Name:

Tatyana Lipanovich

Title: **Director of Sales**

E-mail: **Tlipanovich@pvschemicals.com**

Telephone No.: **313-319-7868**

Name:

Title:

E-mail:

Telephone No.:

Generic e-mail for purchase orders: **TechnologiesCustomerService@pvschemicals.com**

(Broward County auto distributes purchase orders from its financial system. To ensure a firm receives a purchase order, it is suggested a company accessible e-mail address is used.)

11. List name and title of each principal, owner, officer, and major shareholder:

a) **James M. Nicholson**

b) **David A. Nicholson**

c) **Tmothy F. Nicholson**

d) **John S. Nicholson**

12. Affiliated Entities of the Principal(s): List the names and addresses of "affiliated entities" of the Vendor's principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County. Affiliated entities of the principal(s) are those entities related to the vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.
- a) **Pressure Vessel Services, dba PVS Chemicals, Inc.**
- b)
- c)
- d)
13. Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response.
- Yes No
14. Has your firm, its principals, officers or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response the reinstatement date, if granted.
- Yes No
15. Specify the type of services or commodities your firm offers:
Supplying Ferric Chloride and Ferrous Chloride
16. How many years has your firm been in business while providing the services and/or products offered within this solicitation?
38 years
17. Is your firm's business regularly engaged in and routinely selling the product(s) or services offered within this solicitation?
- Yes No
18. Does your firm affirm that it is currently authorized by the manufacturer as a dealer/seller of the product (s) offered herein, and warranty offered is the manufacturer's warranty with Broward County recorded as the original purchase?
- Yes No N/A (if service)
19. Has your firm ever failed to complete any services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.
- Yes No
20. Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response.
- Yes No
21. Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response.
- Yes No
22. Has your firm's surety ever intervened to assist in the completion of a contract or have Performance and/or Payment Bond claims been made to your firm or its predecessor's sureties during the last three years? If yes, specify details in an attached written response, including contact information for owner and surety company.
- Yes No
23. If requested, will your firm extend the same price, terms and conditions to other governmental entities during the period covered by this contract?
- Yes No
24. Would your firm accept a Visa credit card as payment from Broward County, with no additional fees or change to bid price? Procurement Contract must be approved and designated for procurement card (p-card) by Director of Purchasing for use prior to ordering.

Yes No

25. Living Wage solicitations only: In determining what, if any, fiscal impact(s) are a result of the Ordinance for this solicitation, provide the following for informational purposes only. Response is not considered in determining the award of the contract. Living Wage had an effect on the pricing

Yes No

If yes, Living Wage increased the pricing by % or decreased the pricing by %.

26. Non-Collusion Certification: Vendor shall disclose, to their best knowledge, any Broward County officer or employee, or any relative of any such officer or employee as defined in Section 112.3135 (1)(c), the Florida Statutes who is an officer or director of, or has a material interest in, the Vendor's business, who is in a position to influence this procurement. Any Broward County officer or employee who has input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. Failure of a Vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.
Select One:

Vendor certifies that this offer is made independently and free from collusion; or

Vendor is disclosing names of officers or employees who have a material interest in this procurement and is in a position to influence this procurement. Vendor must include a list of name(s), and relationship(s) with its submittal.

27. Participation in Solicitation Development:

I have not participated in the preparation or drafting of any language, scope, or specification that would provide my firm or any affiliate an unfair advantage of securing this solicitation that has been let on behalf of Broward County Board of County Commissioners.

I have provided information regarding the specifications and/or products listed in this solicitation that has been let on behalf of Broward County Board of County Commissioners.

If this box is checked, provide the following:

Name of Person the information was provided:

Title:

Date information provide:

For what purpose was the information provided?

Question 28 – 31 are only applicable to **service contracts** or a **construction contracts** (repair, maintain or furnish and install) solicitations:

28. What similar on-going contracts is your firm currently working on? If additional space is required, provide on separate sheet.

29. Has your firm completely inspected the project site(s) prior to submitting response? Yes No

30. Will your firm need to rent or purchase any equipment for this contract? If yes, please specify details in an attached written response.

Yes No

31. What equipment does your firm own that is available for this contract?

32. Provide at least three (3) individuals, corporations, agencies, or institutions for which your firm has completed work of a similar nature or in which your firm sold similar commodities in the past three (3) years. Contact persons shall have firsthand knowledge of the referenced project/contract. Only provide references for non-Broward County Board of County Commissioners contracts. For Broward County contracts, the County will review performance evaluations in its database for vendors with previous or current contracts with the County. The County considers references and performance evaluations in the evaluation of Vendor's past performance. If any of the following references are inaccessible or not relevant, additional references may be requested by the County.

Reference 1:

Scope of Work: **Pittsburgh Water & Sewer**

Contract/Project Title: **Supplying Ferric Chloride**

Agency: **Water**
Contact Name/Title: **Thoryn Simpson, Procurement Manager**
Contact Telephone: **412-255-8800 ext. 25**
Email: **TSimpson@pgh2o.com**
Contract/Project Dates (Month and Year): **Current-December 2024**
Contract Amount: **3,500,000.00**

Reference 2:

Scope of Work: **City of Atlanta, GA**
Contract/Project Title: **Supplying Ferric Chloride**
Agency: **Water**
Contact Name/Title: **Erika Stewart**
Contact Telephone: **404-274-0131**
Email: **estewart@Atlanta,Ga.Gov**
Contract/Project Dates (Month and Year): **Current-June 2025**
Contract Amount: **1,250,000.00**

Reference 3:

Scope of Work: **City of Monroe, NC**
Contract/Project Title: **Water Treatment Chemicals**
Agency: **Water**
Contact Name/Title: **Monica C. Bulos**
Contact Telephone: **704-282-4603**
Email: **mbulos@monroenc.org**
Contract/Project Dates (Month and Year): **Current-October 2024**
Contract Amount: **190,000.00**

Revised May 1, 2021

Supplier: PVS Technologies

LOCATION CERTIFICATION

Refer to applicable sections for submittal instructions. Failure to submit required forms or information by stated timeframes will deem vendor ineligible for local preference or location tiebreaker.

Broward County [Code of Ordinances, Section 1-74](#), et seq., provides certain preferences to Local Businesses, Locally Based Businesses, and Locally Based Subsidiaries, and the [Broward County Procurement Code](#) provides location as the first tiebreaker criteria. Refer to the ordinance for additional information regarding eligibility for local preference.

For Invitation for Bids:

To be eligible for the Local Preference best and final offer (“BAFO”) and location tiebreaker, the Vendor **must** submit this fully completed form and a copy of its Broward County local business tax receipt **at the same time it submits its bid. Vendors who fail to comply with this submittal deadline will not be eligible for either the BAFO or the location tiebreaker.**

For Request for Proposals (RFPs), Request for Letters of Interest (RLIs), or Request for Qualifications (RFQs):

For Local Preference eligibility, the Vendor **should** submit this fully **completed form** and **all Required Supporting Documentation** (as indicated below) at the time Vendor submits its response to the procurement solicitation. If not provided with submittal, the Vendor **must** submit within three business days after County’s written request. Failure to submit required forms or information by stated timeframes will deem the Vendor ineligible for local preference.

To be eligible for the location tiebreaker, **the Vendor must submit this fully completed form and a copy of its Broward County local business tax receipt at the same time it submits its response.** Vendors who fail to comply with this submittal deadline will not be eligible for the location tiebreaker.

The undersigned Vendor hereby certifies that (check the box for only one option below):

- Option 1:** The Vendor is a **Local Business**, but does not qualify as a **Locally Based Business** or a **Locally Based Subsidiary**, as each term is defined by [Section 1-74, Broward County Code of Ordinances](#). The Vendor further certifies that:
- A. It has continuously maintained, for at least the one (1) year period immediately preceding the bid posting date (i.e., the date on which the solicitation was advertised),
- a physical business address located within the limits of Broward County, listed on the Vendor’s valid business tax receipt issued by Broward County (unless exempt from business tax receipt requirements),
 - in an area zoned for the conduct of such business,
 - that the Vendor owns or has the legal right to use, and
 - from which the Vendor operates and performs on a day-to-day basis business that is a substantial component of the goods or services being offered to Broward County in connection with the applicable competitive solicitation (as so defined, the “Local Business Location”).

If Option 1 selected, indicate **Local Business Location**:

- Option 2:** The Vendor is both a **Local Business** and a **Locally Based Business** as each term is defined by Section 1-74, Broward County Code of Ordinances. The Vendor further certifies that:
- A. The Vendor has continuously maintained, for at least the one (1) year period immediately preceding the bid posting date (i.e., the date on which the solicitation was advertised),

- i. a physical business address located within the limits of Broward County, listed on the Vendor's valid business tax receipt issued by Broward County (unless exempt from business tax receipt requirements),
 - ii. in an area zoned for the conduct of such business,
 - iii. that the Vendor owns or has the legal right to use, and
 - iv. from which the Vendor operates and performs on a day-to-day basis business that is a substantial component of the goods or services being offered to Broward County in connection with the applicable competitive solicitation as so defined, the "Local Business Location");
- B. The Local Business Location is the primary business address of the majority of the Vendor's employees as of the bid posting date, and/or the majority of the work under the solicitation, if awarded to the Vendor, will be performed by employees of the Vendor whose primary business address is the Local Business Location;
- C. The Vendor's management directs, controls, and coordinates all or substantially all of the day-to-day activities of the entity (such as marketing, finance, accounting, human resources, payroll, and operations) from the Local Business Location;
- D. The Vendor has not claimed any other location as its principal place of business within the one (1) year period immediately preceding the bid posting date; and
- E. Less than fifty percent (50%) of the total equity interests in the business are owned, directly or indirectly, by one or more entities with a principal place of business located outside of Broward County. The Vendor certifies that the total equity interests in the owned, directly or indirectly, by one or more entities with a principal place of business Vendor located outside of Broward County is .

If Option 2 selected, indicate **Local Business Location**:

Option 3: The Vendor is both a **Local Business** and a **Locally Based Subsidiary** as each term is defined by Section 1-74, Broward County Code of Ordinances. The Vendor further certifies that:

- A. The Vendor has continuously maintained:
 - i. for at least the one (1) year period immediately preceding the bid posting date (i.e., the date on which the solicitation was advertised),
 - ii. a physical business address located within the limits of Broward County, listed on the Vendor's valid business tax receipt issued by Broward County (unless exempt from business tax receipt requirements),
 - iii. in an area zoned for the conduct of such business,
 - iv. that the Vendor owns or has the legal right to use, and
 - v. from which the Vendor operates and performs on a day-to-day basis business that is a substantial component of the goods or services being offered to Broward County in connection with the applicable competitive solicitation (as so defined, the "Local Business Location");
- B. The Local Business Location is the primary business address of the majority of the Vendor's employees as of the bid posting date, and/or the majority of the work under the solicitation, if awarded to the Vendor, will be performed by employees of the Vendor whose primary business address is the Local Business Location;
- C. The Vendor's management directs, controls, and coordinates all or substantially all of the day-to-day activities of the entity (such as marketing, finance, accounting, human resources, payroll, and operations) from the Local Business Location;
- D. The Vendor has not claimed any other location as its principal place of business within the one (1) year period immediately preceding the bid posting date; and
- E. At least fifty percent (50%) of the total equity interests in the business are owned, directly or indirectly, by one or more entities with a principal place of business located outside of Broward County. The Vendor certifies that the total equity interests in the Vendor owned, directly or indirectly, by one or more entities with a principal place of business located outside of Broward County is .

If Option 3 selected, indicate **Local Business Location**:

Option 4: The Vendor is a **joint venture** composed of one or more Local Businesses, Locally Based Businesses, or Locally Based Subsidiaries, as each term is defined by Section 1-74, Broward County Code of Ordinances. Fill in blanks with percentage equity interest or list "N/A" if section does not apply. The Vendor further certifies that:

- A. The proportion of equity interests in the joint venture owned by **Local Business(es)** (each Local Business must comply with all of the requirements stated in Option 1) is % of the total equity interests in the joint venture; and/or
- B. The proportion of equity interests in the joint venture owned by **Locally Based Business(es)** (each Locally Based Business must comply with all of the requirements stated in Option 2) is % of the total equity interests in the joint venture; and/or
- C. The proportion of equity interests in the joint venture owned by **Locally Based Subsidiary(ies)** (each Locally Based Subsidiary must comply with all of the requirements stated in Option 3) is % of the total equity interests in the joint venture.

If Option 4 selected, indicate the Local Business Location(s) (es) on separate sheet.

Option 5: Vendor is not a Local Business, a Locally Based Business, or a Locally Based Subsidiary, as each term is defined by Section 1-74, Broward County Code of Ordinances.

Required Supporting Documentation (in addition to this form): Option 1 or 2 (**Local Business or Locally Based Business**):

- 1. Broward County local business tax receipt.

Option 3 (Locally Based Subsidiary)

- 1. Broward County local business tax receipt.
- 2. Documentation identifying the Vendor's vertical corporate organization and names of parent entities if the Vendor is a Locally Based Subsidiary.

Option 4 (joint venture) composed of one or more Local Business(es), Locally Based Business(es), or Locally Based Subsidiary(ies):

- 1. Broward County local business tax receipt(s) for each Local Business(es), Locally Based Business(es), and/or Locally Based Subsidiary(ies).
- 2. Executed joint venture agreement, if the Vendor is a joint venture.
- 3. If joint venture is comprised of one or more Locally Based Subsidiary(ies), submit documentation identifying the vertical corporate organization and parent entities name(s) of each Locally Based Subsidiary.

If requested by County (any option):

- 1. Written proof of the Vendor's ownership or right to use the real property at the Local Business Location.
- 2. Additional documentation relating to the parent entities of the Vendor.
- 3. Additional documentation demonstrating the applicable percentage of equity interests in the joint venture, if not shown in the joint venture agreement.
- 4. Any other documentation requested by County regarding the location from which the activities of the Vendor are directed, controlled, and coordinated.

By submitting this form, the Vendor certifies that if awarded a contract, it is the intent of the Vendor to remain at the Local Business Location address listed below (or another qualifying Local Business Location within Broward County) for the duration of the contract term, including any renewals or extensions. (If nonlocal Vendor, leave Local Business Location blank.)

Indicate Local Business Location:

True and Correct Attestations:

Any misleading, inaccurate, or false information or documentation submitted by any party affiliated with this procurement may lead to suspension and/or debarment from doing business with Broward County as authorized by

the Broward County Procurement Code. The Vendor understands that, if after contract award, the County learns that any of the information provided by the Vendor on this was false, and the County determines, upon investigation, that the Vendor's provision of such false information was willful or intentional, the County may exercise any contractual right to terminate the contract. The provision of false or fraudulent information or documentation by a Vendor may subject the Vendor to civil and criminal penalties.

AUTHORIZED SIGNATURE/NAME: Tatyana Lipanovich

TITLE: Director of Sales

VENDOR NAME: PVS Technologies, Inc.

DATE: August 12, 2024

Revised May 1, 2021

Supplier: **PVS Technologies**

DOMESTIC PARTNERSHIP ACT CERTIFICATION

The Domestic Partnership Act, Sections 16 ½ - 150 through 16 ½ -165, Broward County Code of Ordinances (the "Act") requires any Vendors contracting with the County, in an amount over \$100,000 provide benefits to registered domestic partners of its employees, on the same basis as it provides benefits to employees' spouses, with certain exceptions as provided by the Act.

Refer to applicable section below based on solicitation type. Failure to submit this form by stated timeframes will deem the Vendor nonresponsive to the solicitation or ineligible for the Domestic Partnership tiebreaker, as applicable.

For Invitation for Bids:

The completed and signed form should be returned with the Vendor's submittal. If not provided with the submittal, the Vendor must submit this form within three business days after County's request. A Vendor shall be deemed non-responsive for failure to fully comply within stated timeframes.

For Request for Proposals (RFPs), Request for Letters of Interest (RLIs), or Request for Qualifications (RFQs):

For the solicitation types referenced in this section, this form can be used for multiple purposes. For solicitations that contain Competitive Consultants' Negotiation Act (CCNA) requirements, this form will be used for tiebreaker criterion only.

1. Domestic Partnership Responsiveness Requirement

If Domestic Partnership is a requirement of the solicitation (refer to Special Instructions to Vendors), this completed and signed form should be returned with the Vendor's submittal. If not provided with the submittal, the Vendor must submit this form within three business days after County's request. A Vendor shall be deemed non-responsive for failure to fully comply within stated timeframes.

2. Domestic Partnership Tiebreaker

To be eligible for the Domestic Partnership tiebreaker, **the Vendor must currently offer the Domestic Partnership benefit and the completed and signed form must be returned at the time of solicitation submittal.** Vendors who fail to comply with this submittal deadline will not be eligible for the Domestic Partnership tiebreaker.

For all submittals over \$100,000.00, the Vendor, by virtue of the signature below, certifies that it is aware of the requirements of Broward County's Domestic Partnership Act, Sections 16-½ -150 through 16 ½ - 165, Broward County Code of Ordinances; and certifies the following: (check only one below).

- 1. The Vendor currently complies with the requirements of the County's Domestic Partnership Act and provides benefits to Domestic Partners (as defined in the Act) of its employees on the same basis as it provides benefits to employees' spouses.
- 2. The Vendor will comply with the requirements of the County's Domestic Partnership Act at time of contract award and for the duration of the contract by providing benefits to Domestic Partners (as defined in the Act) of its employees on the same basis as it provides benefits to employees' spouses.
- 3. The Vendor will not comply with the requirements of the County's Domestic Partnership Act at time of award.

4. The Vendor does not need to comply with the requirements of the County's Domestic Partnership Act at time of award because the following exception(s) applies: **(check only one below)**.
- The Vendor employs less than five (5) employees.
 - The Vendor does not provide benefits to employees' spouses.
 - The Vendor is a governmental entity.
 - The Vendor is a religious organization, association, society, or any non-profit charitable or educational institution or organization operated, supervised, or controlled by or in conjunction with a religious organization, association, or society.
 - The Vendor provides an employee the cash equivalent of benefits. (Attach an affidavit in compliance with the Act stating the efforts taken to provide such benefits and the amount of the cash equivalent).
 - The Vendor cannot comply with the provisions of the Domestic Partnership Act because it would violate the laws, rules or regulations of federal or state law or would violate or be inconsistent with the terms or conditions of a grant or contract with the United States or State of Florida. (Indicate the law, statute or regulation and attach explanation of its applicability).

Tatyana Lipanovich	Director of Sales	PVS Technologies, Inc.	8/13/2024j
Authorized Signature/Name	Title	Vendor	Date

Revised January 24, 2023

Supplier: **PVS Technologies**

LITIGATION HISTORY FORM

- A. All Vendors are required to disclose to the County all “material” cases filed, pending, or resolved during the last three (3) years prior to the solicitation response due date, whether such cases were brought by or against the Vendor, any parent or subsidiary of the Vendor, or any predecessor organization. Additionally, all Vendors are required to disclose to the County all “material” cases filed, pending, or resolved against any principal of Vendor, regardless of whether the principal was associated with Vendor at the time of the “material” cases against the principal, during the last three (3) years prior to the solicitation response. A case is considered to be “material” if it relates, in whole or in part, to any of the following:
- i. A similar type of work that the vendor is seeking to perform for the County under the current solicitation;
 - ii. An allegation of fraud, negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
 - iii. A vendor’s default, termination, suspension, failure to perform, or improper performance in connection with any contract;
 - iv. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary) or receivership; or
 - v. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.
- B. For each material case, the Vendor is required to provide all information identified in the **Litigation History Form**. Additionally, the Vendor shall provide a copy of any judgment or settlement of any material case during the last three (3) years prior to the solicitation response. Redactions of any confidential portions of the settlement agreement are only permitted upon a certification by Vendor that all redactions are required under the express terms of a pre-existing confidentiality agreement or provision.
- C. The County will consider a Vendor’s litigation history information in its review and determination of responsibility.
- D. If the Vendor is a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture.
- E. A vendor is required to disclose to the County any and all cases(s) that exist between the County and any of the Vendor’s subcontractors/subconsultants proposed to work on this project during the last five (5) years prior to the solicitation response.
- F. Failure to disclose any material case, including all requested information in connection with each such case, as well as failure to disclose the Vendor’s subcontractors/subconsultants litigation history against the County, may result in the Vendor being deemed non-responsive.

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

There are no material cases for this Vendor; or

Material Case(s) are disclosed below:

Is this for a: (check type)

Parent Company

Subsidiary

Predecessor Firm

None of the above

If Yes: Name of Parent Subsidiary/Predecessor:

Vendor is Plaintiff

Vendor is Defendant

Case Number

Case Name

Date Filed

Name of Court
or other Tribunal:

Type of Case: Bankruptcy Civil Criminal Administrative/Regulatory

Claim or Cause of Action and Brief description of each Count:

Brief Description of the Subject Matter and Project Involved:

Disposition of Case: Pending Settled Dismissed

Judgement: Vendor's Favor Against Vendor

If Judgement is Against is Judgement Satisfied? Yes: No:

Attach copy of any applicable Judgement, Settlement Agreement and Satisfaction of Judgement.

Opposing Counsel Name:

Opposing Counsel email:

Opposing Counsel Phone:

Vendor Name:

Revised May 1, 2021

Supplier: PVS Technologies

CRIMINAL HISTORY SCREENING PRACTICES CERTIFICATION FORM

The completed and signed form should be returned with Vendor's submittal. If Vendor does not provide it with the submittal, Vendor must submit the completed and signed form within three business days after County's request. Vendor shall be deemed nonresponsive for failure to fully comply within stated timeframes.

Section 26-125(d) of the Broward County Code of Ordinances ("Criminal History Screening Practices") requires that a Vendor seeking a contract in the amount of \$100,000 or more with Broward County shall certify that it has implemented, or will implement upon award of the contract, policies, practices, and procedures regarding inquiry into the criminal history of an applicant for employment, including a criminal history background check of any such person, that preclude inquiry into an applicant's criminal history until the applicant is selected as a finalist and interviewed for the position. The requirement in the preceding sentence shall apply only to positions located within the United States that will foreseeably perform work under a contract with Broward County. The failure of Vendor to comply with Section 26-125(d) at any time during the contract term shall constitute a material breach of the contract, entitling Broward County to pursue any remedy permitted under the contract and any other remedy provided under applicable law. If Vendor fails to comply with Section 26-125(d) at any time during the contract term, Broward County may, in addition to all other available remedies, terminate the contract and Vendor may be subject to debarment or suspension proceedings consistent with the procedures in Chapter 21 of the Broward County Administrative Code.

By signing below, Vendor certifies that it is aware of the requirements of Section 26-125(d), Broward County Code of Ordinances, and certifies the following: (check only one below).

- Vendor certifies that, for positions located within the United States that will foreseeably perform work under a contract with Broward County, it has implemented, or will implement upon award of the contract, policies, practices, and procedures regarding inquiry into the criminal history of an applicant for employment, including a criminal history background check of any such person, that preclude inquiry into an applicant's criminal history until the applicant is selected as a finalist and interviewed for the position.
- Vendor is exempt from the requirements of Section 26-125(d) of the Broward County Code of Ordinances because Vendor is required by applicable federal, state, or local law to conduct a criminal history background check in connection with potential employment at a time or in a manner that would otherwise be prohibited by this section, or because Vendor is a governmental agency.

AUTHORIZED SIGNATURE/ NAME: **Tatyana Lipanovich**

VENDOR NAME: **PVS Technologies, Inc.**

TITLE: **Director of Sales**

DATE: **August 13, 2024**

Revised June 17, 2022

Supplier: PVS Technologies

Insurance Requirements: (Refer to the Insurance Requirement Form)

- A. The insurance requirement designated in the Insurance Requirement Form indicates the minimum coverage required for the scope of work, as determined by the Risk Management Division. Vendor shall provide verification of compliance such as a Certificate of Insurance, or a letter of verification from the Vendor's insurance agent/broker, which states the ability of the Vendor to meet the requirements upon award. The verification must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes. Final award shall be subject to receipt and acceptance by the County of proof of meeting all insurance requirements of the bid. A party may be debarred for failure of a vendor awarded a contract to provide the required insurance within ten (10) days after demand therefor by the Purchasing Division.
- B. Without limiting any of the other obligations or liabilities of Vendor, Vendor shall provide, pay for, and maintain on a primary basis in force until all of its work to be performed under this Contract has been completed and accepted by County (or for such duration specified), at least the minimum insurance coverage and limits set forth in the Insurance Requirement Form under the following conditions listed below. If a limit or policy is not indicated on Insurance Requirement certificate by a checked box, it is not required as a condition of this contract.
1. Commercial General Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage, and when indicated a minimum limit per aggregate. County is to be expressly included as an Additional Insured in the name of Broward County arising out of operations performed for the County, by or on behalf of Vendor, or acts or omissions of Vendor in connection with general supervision of such operation. If Vendor uses a subcontractor, then Vendor shall require that subcontractor names County as an Additional Insured.
 2. Business Automobile Liability with minimum limits per occurrence, combined single limit for bodily injury and property damage. Scheduled autos shall be listed on Vendor's certificate of insurance. County is to be named as an additional insured in the name of Broward County.

Note: Insurance requirements for Automobile Liability are not applicable where delivery will be made by a third party carrier. All vendors that will be making deliveries in their own vehicles are required to provide proof of insurance for Automobile Liability and other pertinent coverages as indicated on the Insurance Requirement certificate, prior to award. If deliveries are being made by a third party carrier, other pertinent coverages listed on the Insurance Requirement certificate are still required.

Vendor should indicate how product is being

delivered: **Truck deliveries-PVS Transportation**

Vendor Name: **PVS Technologies, Inc.**

Company Vehicle: Yes or No

If Common Carrier (indicate carrier):

Other:

3. Workers' Compensation insurance to apply for all employees in compliance with Chapter 440, the "Workers' Compensation Law" of the State of Florida and all applicable federal laws. The policy must include Employers' Liability with minimum limits each accident. If any operations

are to be undertaken on or about navigable waters, coverage must be included for the U.S. Longshoremen & Harbor Workers Act and Jones Act.

4. Excess Liability/Umbrella Insurance may be used to satisfy the minimum liability limits required; however, the annual aggregate limit shall not be less than the highest "each occurrence" limit for the underlying liability policy. Vendor shall endorse County as an Additional Insured unless the policy provides coverage on a pure/true "Follow-form" basis.
5. Builder's Risk or equivalent coverage (such as Property Insurance or Installation Floater) is required as a condition precedent to the issuance of the Second Notice to Proceed for projects involving but not limited to: changes to a building's structural elements, work compromising the exterior of the building for any extended period of time, installation of a large single component, or remodeling where the cost of remodeling is 20% or more the value of the property. Coverage shall be, "All Risks" Completed Value form with a deductible not to exceed Ten Thousand Dollars (\$10,000.00) each claim for all perils except for wind and flood.
6. For the peril of wind, the Vendor shall maintain a deductible that is commercially feasible which does not exceed five percent (5%) of the value of the Contract price. Such Policy shall reflect Broward County as an additional loss payee.
7. For the peril of flood, coverage must be afforded for the lesser of the total insurable value of such buildings or structures, and the maximum amount of flood insurance coverage available under the National Flood Program. Vendor shall maintain a deductible that is commercially feasible and does not exceed five percent (5%) of the value of the Contract price. Such Policy shall reflect Broward County as an additional loss payee.
8. The County reserves the right to provide Property Insurance covering the Project, materials, equipment and supplies intended for specific installation in the Project while such materials, equipment and supplies are located at the Project site, in transit, or while temporarily located away from the Project site. This coverage will not cover any of the Vendor's or subcontractors' tools, equipment, machinery or provide any business interruption or time element coverage to the Vendor(s).
9. If the County decides to purchase Property Insurance or provide for coverage under its existing insurance policy for this Project, then the insurance required to be carried by the Vendor may be modified to account for the insurance being provided by the County. Such modification may also include execution of Waiver of Subrogation documentation.
10. In the event that a claim occurs for this Project and is made upon the County's insurance policy, for other than a windstorm, Vendor will pay at least Ten Thousand Dollars (\$10,000.00) of the deductible amount for such claim.
11. Waiver of Occupancy Clause or Warranty: Policy must be specifically endorsed to eliminate any "Occupancy Clause" or similar warranty or representation that the building (s), addition(s) or structure(s) in the course of construction shall not be occupied without specific endorsement of the policy. The Policy must be endorsed to provide that the Builder's Risk coverage will continue to apply until final acceptance by County.
12. Pollution Liability or Environmental Impairment Liability: including clean-up costs, with minimum limits per claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated, include an annual policy aggregate and name Broward County as an Additional Insured. Vendor shall be responsible for all deductibles in the event of a claim.
13. Professional Liability Insurance with minimum limits for each claim, subject to a maximum deductible per claim. Such policy shall remain in force for the minimum length of time indicated. Vendor shall notify County in writing within thirty (30) days of any claim filed or made against its Professional Liability Insurance policy. Vendor shall be responsible for all

deductibles in the event of a claim. The deductible shall be indicated on the Vendor's Certificate of Insurance.

- C. Coverage must be afforded on a form no more restrictive than the latest edition of the respective policy form as filed by the Insurance Services Office. If the initial insurance expires prior to the completion and acceptance of the Work, renewal certificates shall be furnished upon expiration. County reserves the right to obtain a certified copy of any insurance policy required by this Section within fifteen (15) calendar days of a written request by County.
- D. Notice of Cancellation and/or Restriction: the policy(ies) must be endorsed to provide Broward County with at least thirty (30) days' notice of cancellation and/or restriction.
- E. The official title of the Certificate Holder is Broward County. This official title shall be used in all insurance documentation.
- F. Broward County's Risk Management Division reserves the right, but not the obligation, to review and revise any insurance requirements at the time of contract renewal and/or any amendments, not limited to deductibles, limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work/specifications affecting the applicability of coverage.

Revised May 1, 2021

Supplier: PVS Technologies

Summary of Vendor Rights Regarding Broward County Competitive Solicitations

The purpose of this document is to provide vendors with a summary of their rights to object to or protest a proposed award or recommended ranking of vendors in connection with Broward County competitive solicitations. These rights are fully set forth in the Broward County Procurement Code, available here: <https://www.broward.org/purchasing>.

1. Right to Object

For Requests for Proposals (RFP), Requests for Qualifications (RFQ) or Requests for Letters of Interest (RLI), vendors may object in writing to a proposed recommendation of ranking made by an Evaluation Committee. Objections must be filed within three (3) business days after the proposed recommendation of ranking (if applicable) is posted on the Purchasing Division's website. The written objection must comply with the requirements stated in Section 21.42(h) of the Procurement Code. Failure to timely and fully meet any requirement will result in the loss of a right to object.

2. Right to Protest

For Invitations to Bid (ITBs), RFP, RFQ, and RLIs, vendors may protest the specifications or requirements of a solicitation (or of any addenda). Protests must be received in writing by the Director of Purchasing within five (5) business days after the applicable solicitation (or addenda) is posted on the Purchasing Division's website.

For ITBs, vendors may protest a recommendation for award made by the Broward County Purchasing Division. For RFPs, RFQs, and RLIs, vendors may protest a final recommendation of ranking made by an Evaluation Committee. In all cases, protests must be filed in writing within five (5) business days after a recommended ranking or recommendation for award is posted on the Purchasing Division's website.

Any protest must comply with requirements stated in Part X of the Procurement Code, including a filing fee (if applicable). Failure to timely and fully meet any requirement will result in a loss of protest rights.

Vendors may appeal the denial of a protest. Section 21.81 of the Procurement Code identifies all other matters that may be appealed. Appeals may require payment of an appeal bond. Appeals must comply with requirements stated in Part XII of the Procurement Code. Failure to timely and fully meet any requirement will result in a loss of appeal rights.

Cone of Silence:

The Board of County Commissioners recently updated provisions of the Cone of Silence Ordinance, Section 1-266, of the Broward County Code of Ordinances, effective as of April 1, 2022.

The County's Cone of Silence Ordinance prohibits all communications, oral or written, relating to a competitive solicitation among vendors/vendor representatives, County Staff, and Commissioner Offices while the cone is in effect. Communications with Purchasing Division employees, the solicitation's designated Project Manager(s) or designee(s), the Office of Economic and Small Business (OESBD) Small Business Development Specialist Supervisor (954-357-6400), and others as specifically identified in the Cone of Silence Ordinance are permitted. Additionally, communication is permitted at pre-bid conferences and negotiation meetings, as applicable.

The Cone of Silence begins upon the advertisement of an ITB, RFP, RFQ, or RLI. The Cone of Silence terminates when the solicitation is awarded, all responses are rejected, or the Board takes other action which ends the solicitation.

Any violations of the Code of Silence Ordinance by any vendor/vendor representative, may be reported to the County's Professional Standards/Human Rights Section. If the County's Professional Standards/Human Rights Section determines that a violation has occurred, a fine shall be imposed as provided in the Broward County Code of Ordinances. At the sole discretion of the Broward County Board of County Commissioners, a violation may void an award of the applicable competitive solicitation.

Review the Cone of Silence Ordinance, Section 1-266 of the Broward County Code of Ordinances, for more detailed information.

Updated: April 1, 2022

No Bids

Brenntag Mid-South Inc Brenntag Mid-South appreciates the effort Broward County put into preparing this proposal. However, we have decided to NO BID. I regret that we're unable to go forward with the bid but ask that you keep us on the list for future opportunities.

Pencco, Inc. We are unable to supply a bid at this time .