SAFETY DATA SHEET

Creation Date 27-Feb-2023 **Revision Date** 22-Dec-2025 **Revision Number** 6

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name **Iron(III) chloride, anhydrous**

Cat No. : **12357**

CAS No 7705-08-0
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Acute oral toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements

Harmful if swallowed
Causes skin irritation
May cause an allergic skin reaction
Causes serious eye damage

Precautionary Statements
Prevention
Do not handle until all safety precautions have been read and understood
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Wear protective gloves/protective clothing/eye protection/face protection
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing
If skin irritation or rash occurs: Get medical advice/attention
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
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200
No information available
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/information on Ingredients

Component	CAS No	Weight %
Iron(III) chloride	7705-08-0	<100
Zinc chloride	7646-85-7	0-0.15
Chromic chloride	10025-73-7	0-0.15
Nickel(II) chloride	7718-54-9	0-<0.1

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation	Remove to fresh air.
Ingestion	Do NOT induce vomiting.
Most important symptoms and effects	Causes eye burns. May cause allergic skin reaction. Causes severe eye damage. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, CO_2, water spray or alcohol-resistant foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	No information available.

7. Handling and Storage

Handling	Ensure adequate ventilation.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Iron(III) chloride	TWA: 1 mg/m³	(Vacated) TWA: 1 mg/m³	REL = 1 mg/m³ (TWA)	TWA: 1 mg/m³
Zinc chloride	TWA: 1 mg/m³ STEL: 2 mg/m³	(Vacated) TWA: 1 mg/m³ (Vacated) STEL: 2 mg/m³ TWA: 1 mg/m³	IDLH: 50 mg/m³ REL = 1 mg/m³ (TWA) STEL: 2 mg/m³	TWA: 1 mg/m³ STEL: 2 mg/m³
Chromic chloride		(Vacated) TWA: 0.5 mg/m³	IDLH: 25 mg/m³ REL = 0.5 mg/m³ (TWA)	TWA: 0.5 mg/m³
Nickel(II) chloride	TWA: 0.1 mg/m³	(Vacated) TWA: 0.1 mg/m³	IDLH: 10 mg/m³ REL = 0.015 mg/m³ (TWA)	TWA: 0.1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical State	Solid, powder Solid	
Color	Green Black	
Odor	No information available	
Odor Threshold	No information available	
Property	**Values**	**Remarks • Method**
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	No information available	**Method -** No information available
Flammability (liquid)	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	1	200 g/l aq.sol. 20°C
Viscosity	Not applicable	Solid
Water Solubility	No information available	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	log Pow
Iron(III) chloride	-4

Chromic chloride	-3	
Vapor Pressure	No data available	
Density / Specific Gravity	~2.9 g/cm3	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	

Other Information

Molecular Formula	Cl3 Fe
Molecular Weight	162.21
Evaporation Rate	Not applicable - Solid

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic.

Conditions to Avoid Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation Not an expected route of exposure.
Ingestion May be harmful if swallowed.
Eyes Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness. May cause irritation.
Skin Avoid contact with skin. Skin Corrosion/Irritation. May cause irritation.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iron(III) chloride	450 mg/kg (Rat) 316 mg/kg (Rat)	-	-
Zinc chloride	350 mg/kg (Rat)	-	LC50 <= 1975 mg/m³ (Rat) 10 min
Chromic chloride	LD50 = 440 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	31.5 mg/m³/2h (Mouse)
Nickel(II) chloride	LD50 = 175 mg/kg (Rat)	-	-

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met
Skin Category 1

Component	Test method	Test species	Study result
Chromic chloride 10025-73-7 (0-0.15)	in vivo OECD Test Guideline 406	guinea pig	Sensitization

No information available

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Chromic chloride 10025-73-7 (0-0.15)	OECD Test Guideline 473	in vitro	negative

(f) carcinogenicity; Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Chromic chloride 10025-73-7 (0-0.15)	in vivo	Rat	negative

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Iron(III) chloride	7705-08-0	Not listed	Not listed	Not listed	Not listed	Not listed
Zinc chloride	7646-85-7	Not listed	Not listed	Not listed	Not listed	Not listed
Chromic chloride	10025-73-7	Not listed	Not listed	Not listed	Not listed	Not listed
Nickel(II) chloride	7718-54-9	Group 1	Known	Not listed	X	Not listed

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

(g) reproductive toxicity; Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Chromic chloride 10025-73-7 (0-0.15)	OECD Test Guideline 414	mouse 17 days	negative

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Not applicable
Solid

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Other Adverse Effects The toxicological properties have not been fully investigated.

Endocrine Disrupting Properties This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Iron(III) chloride	Not listed	LC50: 20.95 - 22.56 mg/L, 96h semi-static (Pimephales promelas) LC50: = 20.26 mg/L, 96h semi-static (Lepomis macrochirus)	Not listed	EC50: = 9.6 mg/L, 48h Static (Daphnia magna) EC50: = 27.9 mg/L, 48h (Daphnia magna)
Zinc chloride	EC50: 0.027-0.105 mg/L/72h	LC50: 0.4-2.2 mg/L/96h (Cyprinus carpio)	Not listed	EC50: 0.2 mg/L/48h
Chromic chloride	EC50 = 2 mg/L (96h) Selenastrum capricornutum	LD50 = 57.4 mg/L (96h) Rainbow trout EC10 = 0.246 mg/L Salmo gairdneri	EC50 = 256 mg/L	LC50 = 63.3 mg/L (48h) Daphnia magna
Nickel(II) chloride	EC50: 0.0063 - 0.0125 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 0.66 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: = 6.9 mg/L, 96h static (Cyprinus carpio) LC50: = 1.3 mg/L, 96h semi-static (Cyprinus carpio) LC50: > 100 mg/L, 96h static (Brachydanio rerio) LC50: 2.83 - 5.99 mg/L, 96h static (Poecilia reticulata) LC50: 29.76 - 43.57 mg/L, 96h semi-static (Poecilia reticulata) LC50: = 9.65 mg/L, 96h flow-through (Poecilia reticulata) LC50: = 25 mg/L, 96h flow-through (Pimephales promelas) LC50: 2.02 - 6.88 mg/L, 96h static (Pimephales promelas) LC50: 1.9 - 4 mg/L, 96h (Pimephales promelas) LC50: 6.63 - 9.15 mg/L, 96h static (Oncorhynchus mykiss) LC50: 6.7 - 9.7 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 2.02 - 6.88 mg/L, 96h static (Lepomis macrochirus) LC50: 18.1 - 25.5 mg/L, 96h flow-through (Lepomis macrochirus)	Not listed	EC50: = 0.51 mg/L, 48h Static (Daphnia magna) EC50: = 6.68 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Iron(III) chloride	-4
Chromic chloride	-3

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1773
Proper Shipping Name	FERRIC CHLORIDE, ANHYDROUS
Hazard Class	8
Packing Group	III

TDG

UN-No	UN1773
Proper Shipping Name	FERRIC CHLORIDE, ANHYDROUS
Hazard Class	8
Packing Group	III

IATA

UN-No	UN1773
Proper Shipping Name	FERRIC CHLORIDE, ANHYDROUS
Hazard Class	8
Packing Group	III

IMDG/IMO

UN-No	UN1773
Proper Shipping Name	FERRIC CHLORIDE, ANHYDROUS
Hazard Class	8
Packing Group	III

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Iron(III) chloride	7705-08-0	X	ACTIVE	-
Zinc chloride	7646-85-7	X	ACTIVE	-
Chromic chloride	10025-73-7	X	ACTIVE	-
Nickel(II) chloride	7718-54-9	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Iron(III) chloride	7705-08-0	X	-	231-729-4	X	X	X	X	X	KE-21134
Zinc chloride	7646-85-7	X	-	231-592-0	X	X	X	X	X	KE-35535
Chromic chloride	10025-73-7	X	-	233-038-3	X	X	X	X	X	KE-06017
Nickel(II) chloride	7718-54-9	X	-	231-743-0	X	X	X	X	X	KE-25837

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Zinc chloride	7646-85-7	0-0.15	1.0 %	-
Chromic chloride	10025-73-7	0-0.15	1.0 %	-
Nickel(II) chloride	7718-54-9	0-<0.1	0.1 %	-

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Iron(III) chloride	X	1000 lb	-	-
Zinc chloride	X	1000 lb	X	-
Chromic chloride	-	-	X	-
Nickel(II) chloride	X	-	X	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Chromic chloride	X		-
Nickel(II) chloride	X		-

OSHA - Occupational Safety and Health Administration Not applicable

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) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Iron(III) chloride	1000 lb	-	1000 lb 454 kg
Zinc chloride	1000 lb	-	1000 lb 454 kg
Chromic chloride	-	1 lb	-
Nickel(II) chloride	100 lb	-	100 lb 45.4 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Nickel(II) chloride	7718-54-9	Carcinogen Developmental Male Reproductive	-	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Iron(III) chloride	X	X	X	-	X
Zinc chloride	X	X	X	-	X
Chromic chloride	X	X	X	X	X

Nickel(II) chloride	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Iron(III) chloride	7705-08-0	-	-	-
Zinc chloride	7646-85-7	-	Use restricted. See entry 75. (see link for restriction details)	-
Chromic chloride	10025-73-7	-	-	-
Nickel(II) chloride	7718-54-9	-	Use restricted. See entry 28. (see link for restriction details) Use restricted. See entry 30. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details) Use restricted. See entry 27. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

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

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Iron(III) chloride	7705-08-0	Listed	Not applicable	Not applicable	Not applicable
Zinc chloride	7646-85-7	Listed	Not applicable	Not applicable	Not applicable
Chromic chloride	10025-73-7	Not applicable	Not applicable	Not applicable	Not applicable
Nickel(II) chloride	7718-54-9	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Iron(III) chloride	7705-08-0	Not applicable	Not applicable	Not applicable	Not applicable
Zinc chloride	7646-85-7	Not applicable	Not applicable	Not applicable	Annex I - Y23
Chromic chloride	10025-73-7	Not applicable	Not applicable	Not applicable	Not applicable
Nickel(II) chloride	7718-54-9	Not applicable	1 tonne	Not applicable	Not applicable

16. Other Information

Prepared By
Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS