

SECTION 1: Identification

Product identifier	
Product name	Slide Comparator, Iron (total), Phenanthroline, 0-10 ppm
Product number	9246
Recommended use and restrictions	Use in accordance with manufacturer instruction for water analysis. This product contains sealed liquid chemicals that are hazardous if released. DO NOT USE apparatus if a chemical leak is suspected. For professional use only.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Local: (410) 472-4340 – 8am – 5pm EST Toll-free: (800) 837-8548 – 8am – 5pm EST
Emergency phone number	
CHEMTREC, United States	1-800-424-9300 – 24-hour service
CHEMTREC, International	+1 703-741-5970 – 24-hour service

SECTION 2: Hazard(s) Identification

Physical hazards	Not applicable	
Health hazards	Eye damage/irritation	Category 1
	Skin corrosion/irritation	Category 1B
	Carcinogenicity	Category 1
	Germ cell mutagenicity	Category 2
	Reproductive toxicity	Category 1B
	Sensitization, respiratory	Category 1
	Sensitization, skin	Category 1
	Specific target organ toxicity, repeated exposure	Category 1
Environmental hazards	Specific target organ toxicity, single exposure	Category 3 (Respiratory tract)
	Acute (short-term) aquatic toxicity hazard	Category 2
	Chronic (long-term) aquatic toxicity hazard	Category 2

Label elements

Hazard pictograms



Signal word

Danger

Hazard statements

Causes severe skin burns and serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. May cause cancer. Suspected of causing genetic defects. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. May cause respiratory irritation. Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. Wash skin thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Avoid release into the environment.

Response

IF EXPOSED OR CONCERNED: Call a physician or poison control center. Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a physician or poison control center. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a physician or

poison control center if you feel unwell. IF ON SKIN (OR HAIR): Immediately take off all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. IF EXPERIENCING RESPIRATORY SYMPTOMS: Call a physician or poison control center. Collect spillage.

Storage	Store locked up. Keep tightly capped. Store in a well-ventilated place. Store out of direct sunlight between 36°F–85°F.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazards not otherwise classified	Not applicable

SECTION 3: Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	% w/w
Water	Dihydrogen oxide	7732-18-5	90-100
Cobaltous chloride, hexahydrate	Cobalt(II) chloride, hexahydrate	7791-13-1	≤ 8
Ferric chloride, hexahydrate	Iron(III) chloride, hexahydrate	10025-77-1	≤ 2
Hydrochloric acid	Hydrogen chloride	7647-01-0	≤ 1

SECTION 4: First-Aid Measures

If inhaled

Remove individual to fresh air. Seek medical advice/attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical attention if irritation develops. Chemical burns must be treated by a physician. If eczema or rash develops, seek medical attention.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

If swallowed

Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Call a physician or poison control center immediately. Provide physician with a copy of this document.

Most important symptoms and effects, both acute and delayed

Direct skin or eye contact may cause corrosive burns. Symptoms may include pain, redness or swelling. Scarring or permanent damage, including blindness, could result. Skin contact may cause allergic skin reaction, dermatitis, or rash. Inhalation may cause severe respiratory irritation, such as coughing and wheezing. Inhalation could result in pulmonary edema, symptoms—chest pain, shortness of breath—may be delayed. Inhalation may cause allergy or asthma symptoms or breathing difficulties. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, and bleeding. Encapsulated liquid contains chemical(s) suspected of causing genetic defects, cancer, or damage to fertility or the unborn child. DO NOT USE apparatus if chemical leak is suspected.

Refer to section 11 of the SDS for delayed and immediate effects and chronic effects from short- and long-term exposure. Refer to section 7 for precautions for safe handling.

Indication of any immediate medical attention and special treatment needed

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep person under observation. Symptoms may be delayed.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting Measures

Extinguishing media

Suitable extinguishing media Use extinguishing media appropriate for the surrounding fire.
Unsuitable extinguishing media Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Specific hazards arising from the substance or mixture

Fire hazard Not flammable
Explosion hazard Not explosive
Reactivity Hazardous reactions will not occur under normal conditions.

Hazardous combustion products

Cobalt oxides, iron oxides. During fire, gases hazardous to health may be formed, including toxic hydrogen chloride gas.

Advice for firefighters

Precautionary measures

Exercise caution when fighting any chemical fire; hazardous fumes will be present.

Firefighting

Use water spray or fog for cooling exposed containers.

equipment/instructions

Protection during firefighting

Do not enter fire area without proper protective equipment, including respiratory protection.

Other information

Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not handle if pregnant or breastfeeding. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Ventilate the area. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of large spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and Storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Inspect apparatus before each use. DO NOT USE if chemical leak is suspected. If a leak occurs, apparatus must be handled with protective gloves/protective clothing/eye protection/face protection for immediate disposal; refer to section 13.

Do not handle if pregnant or breastfeeding. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep tightly capped. Store in a well-ventilated place. Store out of direct sunlight between 36°F–85°F. Store away from incompatible materials (refer to section 10 of the SDS). Store locked up.

SECTION 8: Exposure Controls/Personal Protection

Occupational exposure limits

US ACGIH Threshold Limit Values

Components	Type	Value
Cobaltous Chloride, hexahydrate (CAS 7791-13-1)	TWA	0.02 mg/m ³
Ferric chloride, hexahydrate (CAS 10025-77-1)	TWA	1 mg/m ³
Hydrochloric acid (CAS 7647-01-0)	Ceiling	2 ppm (3 mg/m ³)

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Ferric chloride, hexahydrate (CAS 10025-77-1)	TWA	1 mg/m ³
Hydrochloric acid (CAS 7647-01-0)	Ceiling	5 ppm (7 mg/m ³)
Hydrochloric acid (CAS 7647-01-0)	IDLH	50 ppm (75 mg/m ³)

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Hydrochloric acid (CAS 7647-01-0)	Ceiling	5 ppm (7 mg/m ³)

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure controls

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eyewash facilities and emergency shower must be available when handling this product.
Personal protective equipment	
Eye/face protection	Wear appropriate safety glasses with side shields (or goggles) if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing if contact is likely to occur
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical state	Liquid, contained in sealed apparatus
Form	Liquid
Color	Clear, colorless or faint-orange to orange
Odor	No data available
Odor threshold	No data available
pH	<1
Evaporation rate	No data available
Melting point/freezing point	No data available
Initial boiling point (boiling range)	No data available
Flash point	Not applicable
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Upper Flammability Limit	No data available
Lower Flammability Limit	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Miscible with water
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available

SECTION 10: Stability and Reactivity

Reactivity	Hazardous reactions will not occur under normal conditions of use, storage, or transport.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS).
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Freezing temperatures—always store apparatus at room temperature, or at temperatures above 36°F. DO NOT USE apparatus if chemical leak is suspected. If a leak occurs, apparatus must be handled with protective gloves/protective clothing/eye protection/face protection and immediately disposed of in accordance with local/regional/national/international regulations. Avoid contact with incompatible materials. Avoid release into the environment.
Incompatible materials	Encapsulated liquid is incompatible with the following: Strong bases, strong oxidizing agents, and strong reducing agents.
Hazardous decomposition products	Hydrogen chloride.

SECTION 11: Toxicological Information

Information on likely routes of exposure

Inhalation	Avoid inhalation of this product. The contents of this apparatus may cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	Protect exposed skin from contact. Always inspect apparatus for leaks before use. Chemical burn and/or allergic skin reaction may occur if sealed liquid comes into contact with skin.
Eye contact	Avoid close eye contact. Wear eye protection. Always inspect apparatus for leaks before use. Wash skin thoroughly after handling to prevent accidental eye contact.
Ingestion	Avoid accidental ingestion by observing good hygiene practices. Wash hands thoroughly after handling this product.

Symptoms related to the physical, chemical, and toxicological characteristics

Encapsulated liquid is highly corrosive. Exposure may cause skin or eye damage. Liquid contains ingredients that may cause cancer, genetic defects, or damage to fertility or the unborn child. Exposure may cause allergy or asthma symptoms or breathing difficulties if inhaled. Liquid may cause allergic skin reaction. DO NOT USE apparatus if chemical leak is suspected.

Refer to section 4 of the SDS for most important symptoms and effects.

Delayed and immediate effects and chronic effects from short- and long-term exposure

Acute toxicity This product is not classified as an acute toxicity hazard. Acute toxicity estimate (ATE) for the mixture has been calculated based on chapter 3 of GHS.

Product acute toxicity estimate (ATE)

ATEmix (Oral)	4800 mg/kg
ATEmix (Dermal)	>2000 mg/kg
ATEmix (Inhalation)	No data available

Component(s)	Species	Acute toxicity data
Cobaltous chloride, hexahydrate (CAS 7791-13-1)		
LD50 (Oral)	Rat	418 mg/kg (source: vendor)
LD50 (Dermal)	Not applicable	No data available
LC50 (Inhalation)	Not applicable	No data available
Ferric chloride, hexahydrate (CAS 10025-77-1)		
LD50 (Oral)	Rat	500 mg/kg (source: vendor)
LD50 (Dermal)	Not applicable	No data available
LC50 (Inhalation)	Not applicable	No data available
Hydrochloric acid (CAS 7647-01-0)		
LD50 (Oral)	Rat	630 mg/kg (source: vendor)
LD50 (Dermal)	Rabbit	>2000 mg/kg
LC50 (Inhalation)	Not applicable	No data available

Skin corrosion/irritation

Causes severe skin burns

Serious eye damage/eye irritation

Causes serious eye damage

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization

May cause an allergic skin reaction.

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Hydrochloric acid; Group 3 Not classifiable as to carcinogenicity to humans.

Cobalt(II) chloride; 2B - Group 2B: Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

US National Toxicology Program (NTP) Report on Carcinogens

Not listed

Reproductive toxicity

May damage fertility or the unborn child.

Specific target organ toxicity (single exposure)	May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	No data available

SECTION 12: Ecological Information

Ecotoxicity	Toxic to aquatic life with long lasting effects.	
Cobaltous chloride, hexahydrate (CAS 7791-13-1)		
EC50	Crustacea (Water flea)	1.11 mg/L, 48 hours
LC50	Fish (Rainbow trout)	0.569 – 3.474 mg/L, 96 hours
Ferric chloride, hexahydrate (CAS 10025-77-1)		
EC50	Crustacea (Water flea)	9.6 mg/L, 48 hours
LC50	Fish (Bluegill)	20.26 mg/L, 96 hours
Persistence and degradability	No data available	
Bioaccumulative potential	No data available	
Mobility in soil	No data available	
Other adverse effects	Large or frequent spills can have a harmful or damaging effect on the environment.	

SECTION 13: Disposal Considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport Information

DOT

UN number	3264
UN Proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid, ferric chloride)
Reportable Quantity	5000 lbs, Hydrochloric acid
Class (Subsidiary risk)	8
Label(s)	8
Packing group	II
Special provisions	386, B2, IB2, T11, TP2, TP27
Packaging exceptions	154
Packaging, non-bulk	202

IATA

UN number	3264
UN Proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid, ferric chloride)
Class (Subsidiary risk)	8
Packing group	II
Special provisions	A3, A803

IMDG

UN number	3264
UN Proper shipping name	Corrosive liquid, acidic, inorganic, N.O.S. (Hydrochloric acid, ferric chloride)
Class (Subsidiary risk)	8
Packing group	II
Environmental hazards	
Marine pollutant	Yes
Special provisions	None
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

This substance/mixture is not intended to be transported in bulk.

DOT hazard pictograms



IATA/IMDG hazard pictograms



SECTION 15: Regulatory Information

US federal regulations

CERCLA Hazardous Substance (40 CFR 302.4)

Chemical name	CAS number	Reportable Quantity
Cobaltous chloride, hexahydrate	7791-13-1	Not applicable
Ferric chloride, hexahydrate	10025-77-1	1000 lbs
Hydrochloric acid	7647-01-0	5000 lbs

SARA 302 Extremely Hazardous Substance (40 CFR 355 Appendices A / B)

Not regulated

SARA 304 Emergency Release Notification

Not regulated

SARA 311/312 Hazardous Chemical

Chemical name	CAS number
Cobaltous chloride, hexahydrate	7791-13-1
Ferric chloride, hexahydrate	10025-77-1
Hydrochloric acid	7647-01-0

SARA 313 (TRI reporting)

Chemical name	CAS number
Cobaltous chloride, hexahydrate	7791-13-1

TSCA Section 8(b) Chemical Inventory

All components are on the U.S. EPA TSCA Inventory list.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs)

Chemical name	CAS number
Cobaltous chloride, hexahydrate	7791-13-1

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated

Clean Water Act, Toxic and Priority Pollutants (40 CFR 401.15 and CFR 423, Appendix A)

Chemical name	CAS number
Ferric chloride, hexahydrate	10025-77-1

Safe Drinking Water Act (SDWA)

Chemical name	CAS number
Cobaltous chloride, hexahydrate	7791-13-1

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (California Proposition 65)

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Massachusetts Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ferric chloride, hexahydrate	10025-77-1
Hydrochloric acid	7647-01-0

New Jersey Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Cobaltous chloride, hexahydrate	7791-13-1
Ferric chloride, hexahydrate	10025-77-1
Hydrochloric acid	7647-01-0

Pennsylvania Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ferric chloride, hexahydrate	10025-77-1
Hydrochloric acid	7647-01-0

Rhode Island Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ferric chloride, hexahydrate	10025-77-1
Hydrochloric acid	7647-01-0

SECTION 16: Other Information**NFPA Rating**

Health hazard	3
Fire hazard	0
Reactivity	1
Specific	N/A

Disclaimer

The information in the Safety Data Sheet is offered for your consideration and guidance for safe handling, use, storage, transportation, disposal, and release of this product and is not considered a warranty or quality specification. Taylor Technologies, Inc., disclaims all expressed or implied warranties and assumes no responsibility for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

License granted to make unlimited paper copies for internal use only. This Safety Data Sheet may not be altered in any way without the expressed knowledge and permission of Taylor Technologies, Inc. The information contained in this sheet is based on lab experience and the most current data available.

Issue date:

09/16/2021

Revision date:

09/16/2021

Revision information: