

SECTION 1: Identification

Product identifier	
Product name	2-Standard Comparator, Orthophosphate (lo range), Stannous Chloride, 2 & 8 ppm
Product number	9027
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	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Eye damage/irritation	Category 1
	Skin corrosion/irritation	Category 1B
	Sensitization, respiratory	Category 1
	Sensitization, skin	Category 1
	Carcinogenicity	Category 1
	Germ cell mutagenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, repeated exposure	Category 1
	Specific target organ toxicity, single exposure	Category 3 (Respiratory tract)
Environmental hazards	Acute (short-term) aquatic toxicity hazard	Category 1
	Chronic (long-term) aquatic toxicity hazard	Category 1

Label elements

Hazard pictograms



Signal word

Danger

Hazard statements

Harmful if swallowed. May be corrosive to metals. 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. Very 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. Contaminated work clothing must not be allowed out of the workplace. Keep only in original container. Avoid release into the environment

Response

IF EXPOSED OR CONCERNED: 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 plenty of water. Wash contaminated clothing before reuse. IF SKIN IRRITATION OR RASH OCCURS: Get medical advice/attention. 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. Absorb spillage to prevent material damage. Collect spillage.

Storage	Store locked up. Store in corrosive-resistant container with corrosive-resistant inner liner. 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	70-100
Hydrochloric acid	Hydrogen chloride	7647-01-0	≤ 20
Cupric sulfate, pentahydrate	Copper(II) sulfate, pentahydrate	7758-99-8	≤ 18
Cobaltous chloride, hexahydrate	Cobalt(II) chloride, hexahydrate	7791-13-1	≤ 5
Sulfuric acid	Oil of vitriol; Sulphuric acid	7664-93-9	≤ 2

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. 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) that may cause cancer, genetic defects, 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, copper oxides, sulfur 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 equipment/instructions	Use water spray or fog for cooling exposed containers.
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.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in corrosive-resistant container with corrosive-resistant inner liner. 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).

SECTION 8: Exposure Controls/Personal Protection**Occupational exposure limits****US ACGIH Threshold Limit Values**

<u>Components</u>	<u>Type</u>	<u>Value</u>
Cobaltous Chloride, hexahydrate (CAS 7791-13-1)	TWA	0.02 mg/m ³
Cupric sulfate, pentahydrate (CAS 7758-99-8)	TWA	1 mg/m ³
Hydrochloric acid (CAS 7647-01-0)	Ceiling	2 ppm (3 mg/m ³)
Sulfuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³

US NIOSH: Pocket Guide to Chemical Hazards

<u>Components</u>	<u>Type</u>	<u>Value</u>
Cupric chloride, dihydrate (CAS 10125-13-0)	TWA	1 mg/m ³
Cupric sulfate, pentahydrate (CAS 7758-99-8)	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)
Sulfuric acid (CAS 7664-93-9)	TWA	1 mg/m ³
Sulfuric acid (CAS 7664-93-9)	IDLH	15 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)
Sulfuric acid (CAS 7664-93-9)	TWA	1 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, light-blue to blue
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	Encapsulated liquid may be corrosive to metals if released.
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, strong reducing agents, and metals.
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 and may be harmful if swallowed. 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 classified as an acute oral toxicity hazard. Acute toxicity estimate (ATE) for the mixture has been calculated based on chapter 3 of GHS. 0% of the mixture consists of ingredient(s) with unknown acute oral toxicity.
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Product acute toxicity estimate (ATE)

ATEmix (Oral)	955 mg/kg
ATEmix (Dermal)	No data available
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
Cupric sulfate, pentahydrate (CAS 7758-99-8)		
LD50 (Oral)	Rat	300 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

Sulfuric acid (CAS 7664-93-9)

LD50 (Oral)	Rat	2140 mg/kg (source: NIOSH)
LD50 (Dermal)	Not applicable	No data available
LC50 (Inhalation)	Not applicable	0.375 mg/L, 4 hr (source: vendor)

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

Strong inorganic mists containing sulfuric acid; Known to be human carcinogens.

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	Very 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
Cupric sulfate, pentahydrate (CAS 7758-99-8)		
EC50	Crustacea (Water flea)	0.0058 – 0.0073 mg/L, 48 hours
LC50	Fish (Bluegill)	0.66 – 1.15 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	1789
UN Proper shipping name	Hydrochloric acid solution
Reportable Quantity	5000 lbs, Hydrochloric acid
Class (Subsidiary risk)	8
Label(s)	8
Packing group	II
Special provisions	386, A3, B3, B15, B133, IB2, N41, T8, TP2
Packaging exceptions	154

Packaging, non-bulk 202

IATA

UN number 1789
UN Proper shipping name Hydrochloric acid solution
Class (Subsidiary risk) 8
Packing group II
Special provisions A3, A803

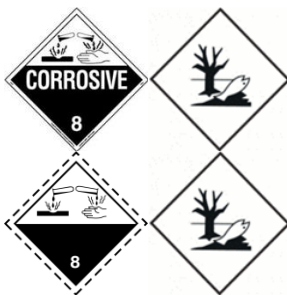
IMDG

UN number 1789
UN Proper shipping name Hydrochloric acid solution
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
Cupric sulfate, pentahydrate	7758-99-8	10 lbs
Hydrochloric acid	7647-01-0	5000 lbs
Sulfuric acid	7664-93-9	1000 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

Yes

SARA 313 (TRI reporting)

Chemical name	CAS number
Cobalt(II) chloride, hexahydrate	7791-13-1
Cupric sulfate, pentahydrate	7758-99-8

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)

<u>Chemical name</u>	<u>CAS number</u>
Cobalt(II) 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)

<u>Chemical name</u>	<u>CAS number</u>
Cupric sulfate, pentahydrate	7758-99-8

Safe Drinking Water Act (SDWA)

<u>Chemical name</u>	<u>CAS number</u>
Cobalt(II) chloride, hexahydrate	7791-13-1
Cupric sulfate, pentahydrate	7758-99-8

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>
Cupric sulfate, pentahydrate	7758-99-8
Hydrochloric acid	7647-01-0
Sulfuric acid	7664-93-9

New Jersey Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Cobalt(II) chloride, hexahydrate	7791-13-1
Cupric sulfate, pentahydrate	7758-99-8
Hydrochloric acid	7647-01-0
Sulfuric acid	7664-93-9

Pennsylvania Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Cupric chloride, dihydrate	10125-13-0
Hydrochloric acid	7647-01-0
Sulfuric acid	7664-93-9

Rhode Island Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Hydrochloric acid	7647-01-0
Sulfuric acid	7664-93-9

SECTION 16: Other Information

NFPA Rating

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

Disclaimer

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