



Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation Phenanthroline Reagent 2

Product Number R5524000

Other Identifying Product Numbers R5524000-1C

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company Ricca Chemical Company

Address 412 West Fork Drive

Arlington, TX 76012 USA

Telephone 888-467-4222

1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA) 800-424-9300

CHEMTREC (International) 1+ 703-527-3887

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

Hazard Class	Category	Hazard Statements	Precautionary Statements
Corrosive to the Respiratory Tract	Corrosive		
Skin Corrosion / Irritation	Category 1	H314	P260,P264,P280,P301+P330+P331, P303+P361+P353,P363,P304+P340, P310,P321,P305+P351+P338,P405, P501
Serious Eye Damage / Eye Irritation	Category 1	H318	P280,P305+P351+P338,P310
Skin Sensitization	Category 1	H317	P261,P272,P280,P302+P352, P333+P313,P321,P362+P364,P501
Carcinogenicity	Category 2	H351	P201,P202,P280,P308+P313,P405, P501
Corrosive to Metals	Category 1	H290	P234,P390,P406
Specific Target Organ Toxicity - Repeated Exposure	Category 2	H373	P260,P314,P501
Hazardous to the Aquatic Environment, Short-term (Acute)	Acute 2	H401	P273,P501

2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

NOTE: Hazard statements may be combined on labels to improve clarity and readability.

Hazard Number	Hazard Statement
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer
H373	May cause damage to kidneys, liver through prolonged or repeated exposure
H401	Toxic to aquatic life
	Corrosive to the respiratory tract

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

Precautionary Statements:

NOTE: Precautionary statements may be combined or consolidated on labels to improve clarity and readability.

Prevention

Precautionary Number	Precautionary Statement
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original packaging.
P260	Do not breathe fumes or mist.
P264	Wash hands, arms, and face thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.

Response

Precautionary Number	Precautionary Statement
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	If exposed or concerned: Get medical advice or attention.
P310	Immediately call a poison center or doctor.
P362+P364	Take off contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material damage.

Storage

Precautionary Number	Precautionary Statement
P405	Store locked up.

Disposal

Precautionary Number	Precautionary Statement
P501	Dispose of contents/container to suitable waste stream in accordance with local, state, federal, and international regulations.

2.3. Hazards not Otherwise Classified

No other hazards identified.

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

2.4. Ingredients of Unknown Acute Toxicity

9.7 percent of this mixture consists of ingredient(s) of unknown acute dermal toxicity. 4.2 percent of this mixture consists of ingredient(s) of unknown acute inhalation toxicity.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Mixture

Chemical Name (IUPAC)	Common Name and Synonyms	CAS Number	Weight%
water	Water	7732-18-5	57.61
sodium acetate trihydrate	Sodium Acetate Trihydrate; Acetic acid, sodium salt, trihydrate	6131-90-4	28.64
acetic acid	Acetic Acid; Ethanoic acid	64-19-7	9.54
hydroxylamine hydrochloride	Hydroxylamine Hydrochloride; Hydroxylammonium chloride	5470-11-1	4.09
1,10-phenanthroline hydrochloride	1,10-Phenanthroline Monohydrochloride Monohydrate; 1,10-Phenanthroline, monohydrochloride	3829-86-5	0.12

SECTION 4: First-Aid Measures

4.1. Description of Necessary Measures

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Eye contact may cause severe eye damage followed by loss of sight. Vapor exposure may cause watering and irritation to eyes.

Ingestion: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Do not induce vomiting. Give large quantity of water. Call a physician immediately.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. May cause irritation, redness, and pain.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Suspected of causing cancer Corrosive liquid. May cause irritation to all areas of contact. Harmful if inhaled. Immediately wash areas of contact with plenty of water for at least 15 minutes. If ingested, give large quantity of water. Do not induce vomiting. EYE CONTACT: Eye contact may cause severe eye damage followed by loss of sight. Vapor exposure may cause watering and irritation to eyes. SKIN CONTACT: May cause irritation, redness, and pain. CHRONIC EFFECTS / CARCINOGENICITY: Repeated exposures may cause erosion of exposed front teeth, darkening of skin and chronic inflammation of the nose, throat and bronchial tubes.

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

4.3. Immediate Medical Attention or Special Treatment Needed

Immediately call a poison center or doctor. Irrigate immediately with large quantity of water for at least 15 minutes. Get medical attention immediately. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Flush with plenty of water for at least 15 minutes. Call a physician if irritation develops. Do not induce vomiting. Give large quantity of water. Call a physician immediately.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Water, dry chemical, foam, or carbon dioxide. Water spray may be used to keep fire-exposed containers cool.

5.2. Specific Hazards Arising from the Substance or Mixture in a Fire

Not considered to be a fire or explosion hazard.

5.3. Special Protective Equipment and Precautions for Firefighters

Use protective clothing and breathing equipment appropriate for the surrounding fire.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable material (paper towels, etc.) and dispose of in accordance with local regulations. Ventilate, if necessary, site of spillage well to evaporate remaining liquid and dispel vapor.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage.

SECTION 8: Exposure Controls / Personal Protection

8.1. Exposure Limits

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

U.S. OSHA - Permissible Exposure Limits (PEL) - Time Weighted Averages (TWA)

Chemical Name	CAS Number	Exposure Limit
Acetic Acid	64-19-7	10 ppm TWA; 25 mg/m ³ TWA

U.S. OSHA - Permissible Exposure Limits (PEL) - Ceiling Limits

No limits found.

U.S. OSHA - Permissible Exposure Limits (PEL) - Short Term Exposure Limits (STEL)

No limits found.

U.S. OSHA - Specifically Regulated Chemicals

No limits found.

ACGIH - Threshold Limit Values - Ceilings (TLV-C)

No limits found.

ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)

Chemical Name	CAS Number	Exposure Limit
Acetic Acid	64-19-7	15 ppm STEL

ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

Chemical Name	CAS Number	Exposure Limit
Acetic Acid	64-19-7	10 ppm TWA

8.2. Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limit.

8.3. Individual Protective Measures and Personal Protective Equipment

Respiratory Protection: Work with adequate ventilation or wear respirator with acid gas/organic vapor cartridge.

Skin Protection: Chemical resistant gloves.

Eye Protection: Safety glasses or goggles.

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Physical State:	liquid
Color:	Tan
Odor:	Data not available.
Odor Threshold:	Data not available.
Melting/Freezing Point:	Data not available.
Boiling Point/Range:	Data not available.
Flammability:	Data not available.
Flammability/Explosive Limits:	Data not available.
Flash Point:	Not flammable
Auto-Ignition Temperature:	Data not available.
Decomposition Temperature:	Data not available.
pH:	Data not available.
Kinematic Viscosity:	Data not available.
Solubility:	Miscible
Vapor Pressure:	Data not available.
Evaporation Rate:	Data not available.
Relative Density:	1.1
Relative Vapor Density:	Data not available.
Particle Characteristics:	Data not available.
Partition Coefficient n-octanol/water, log	Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

Keep only in original packaging. Strong bases, strong oxidizers, chromic acid, sodium peroxide, nitric acid, perchloric acid.

10.4. Hazardous Decomposition Products

Will not occur.

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
1,10-Phenanthroline Monohydrochloride Monohydrate	3829-86-5	Oral LD50 Rat 132 mg/kg (Source: NZ_CCID) As 1,10-Phenanthroline [66-71-7]
Hydroxylamine Hydrochloride	5470-11-1	Oral LD50 Acute Toxicity Estimate 500 mg/kg (ECHA)
Sodium Acetate Trihydrate	6131-90-4	Oral LD50 Rat 3530 mg/kg (Source: NLM_CIP) As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	Oral LD50 Rat 3530 mg/kg (Source: Canada_HSA)

Acute Toxicity - Dermal Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Hydroxylamine Hydrochloride	5470-11-1	Dermal LD50 Acute Toxicity Estimate 1100 mg/kg (Source: ECHA)
Sodium Acetate Trihydrate	6131-90-4	Dermal LD50 Rabbit > 10 g/kg (Source: NLM_CIP) As Sodium acetate [127-09-3]

Acute Toxicity - Inhalation Exposure:

Inhalation acute toxicity estimate (ATE, vapor): 89.0985 mg/L, 4 h(calculated)

Chemical Name	CAS Number	Toxicity
Sodium Acetate Trihydrate	6131-90-4	Inhalation LC50 Rat >5.6 mg/L 4 h (no deaths occurred, aerosol, Source: ECHA) As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	Inhalation LC50 Rat > 8.5 mg/L 4 h (Source: Canada_HSA)

11.2 Carcinogenicity:

International Agency for Research on Cancer (IARC)

Chemical Name	CAS Number	Classification
No data found.		

National Toxicology Program (NTP)

Chemical Name	CAS Number	Classification
No data found.		

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

U.S. OSHA specifically regulated carcinogens

Chemical Name	CAS Number	Classification
No data found.		

11.3 Additional Toxicology Information:

Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of causing cancer. May cause damage to kidneys, liver through prolonged or repeated exposure. Corrosive to the respiratory tract.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Chemical Name	CAS Number	Species	Exposure	Toxicity
Sodium Acetate Trihydrate	6131-90-4	Freshwater Fish	Acute	"LC50 96 h Danio rerio >100 mg/L [semi-static] (ECHA)" As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	Freshwater Fish	Acute	LC50 96 h Pimephales promelas 79 mg/L [static] (EPA); LC50 96 h Lepomis macrochirus 75 mg/L [static] (EPA)
Sodium Acetate Trihydrate	6131-90-4	Water Flea	Acute	"EC50 48 h Daphnia magna >1000 mg/L (IUCLID)" As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	Water Flea	Acute	EC50 48 h Daphnia magna 65 mg/L [Static] (EPA)

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 14: Transportation Information

14.1 Transportation by Land - Department of Transportation (DOT, United States of America)

Sizes: 1 L

UN Number: UN2790

Proper Shipping Name: Acetic Acid Solution

Hazard Class: 8

Packing Group: III

Hazard Label(s):



14.2 Transportation by Air - International Air Transport Association (IATA)

Sizes: 1 L

UN Number: UN2790

Proper Shipping Name: Acetic Acid Solution

Hazard Class: 8

Packing Group: III

Hazard Label(s):



14.3 Transportation of Dangerous Goods (TDG, Canada)

Sizes: 1 L

UN Number: UN2790

Proper Shipping Name: ACETIC ACID SOLUTION

Hazard Class: 8

Packing Group: III

Hazard Label(s):



Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 15: Regulatory Information

15.01. Occupational Safety and Health Administration (OSHA) Hazards

Chemical Name	CAS Number	Regulatory Information
No data found.		

15.02. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Chemical Name	CAS Number	RQ
No data found.		

15.03. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Chemical Name	CAS Number	Regulatory Information
Acetic Acid	64-19-7	5000 lb final RQ; 2270 kg final RQ

15.04. Superfund Amendments and Reauthorization Act (SARA) 313 Toxics Release Inventory (TRI)

Chemical Name	CAS Number	List
No data found.		

15.05. Massachusetts Right-to-Know Substance List

Chemical Name	CAS Number	Regulatory Information
Acetic Acid	64-19-7	Present (including glacial)

15.06. Pennsylvania Right-to-Know Hazardous Substances

Chemical Name	CAS Number	Regulatory Information
Acetic Acid	64-19-7	Environmental hazard; Environmental hazard (water solutions)

15.07. New Jersey Worker and Community Right-to-Know Components

Chemical Name	CAS Number	Regulatory Information
Acetic Acid	64-19-7	sn 0004

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

15.08. California Proposition 65

Chemical Name	CAS Number	Regulatory Information
No data found.		

15.09. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Chemical Name	CAS Number	List	Status
1,10-Phenanthroline Monohydrochloride Monohydrate	3829-86-5	DSL	Present
Hydroxylamine Hydrochloride	5470-11-1	DSL	Present
Sodium Acetate Trihydrate	6131-90-4	DSL	"Present" As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	DSL	Present
Acetic Acid	64-19-7	NDSL	"Present" As Carboxylic acids, C1-5 [68937-68-8]
Water	7732-18-5	DSL	Present

15.10. United States of America Toxic Substances Control Act (TSCA) List

Chemical Name	CAS Number	Status
1,10-Phenanthroline Monohydrochloride Monohydrate	3829-86-5	Present (ACTIVE)
Hydroxylamine Hydrochloride	5470-11-1	Present (ACTIVE)
Sodium Acetate Trihydrate	6131-90-4	"Present (ACTIVE)" As Acetic acid, sodium salt (1:1) [127-09-3]
Acetic Acid	64-19-7	Present (ACTIVE)
Water	7732-18-5	Present [XU] (ACTIVE)

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Chemical Name	CAS Number	List	Number
1,10-Phenanthroline Monohydrochloride Monohydrate	3829-86-5	EINECS	223-325-1
Hydroxylamine Hydrochloride	5470-11-1	EINECS	226-798-2
Sodium Acetate Trihydrate	6131-90-4	EINECS	"204-823-8" As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	EINECS	200-580-7
Water	7732-18-5	EINECS	231-791-2

15.12. China - Inventory of Existing chemical Substances (IECSC)

Chemical Name	CAS Number	Status
Hydroxylamine Hydrochloride	5470-11-1	Present [37066]
Sodium Acetate Trihydrate	6131-90-4	Present [29623]
Acetic Acid	64-19-7	Present [39068]
Water	7732-18-5	Present [32224]

15.13. Korea - Existing Chemicals Inventory (KECI/KECL)

Chemical Name	CAS Number	List	Status
1,10-Phenanthroline Monohydrochloride Monohydrate	3829-86-5	Annex 1	Present [KE-28206]
Hydroxylamine Hydrochloride	5470-11-1	Annex 1	Present [KE-20602]
Hydroxylamine Hydrochloride	5470-11-1	Annex 3	"Present (97-1-411)" As Hydroxylamine, salts [RR-04538-5]
Sodium Acetate Trihydrate	6131-90-4	Annex 1	"Present [KE-00061]" As Sodium acetate [127-09-3]
Acetic Acid	64-19-7	Annex 1	Present [KE-00013]
Water	7732-18-5	Annex 1	Present [KE-35400]

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

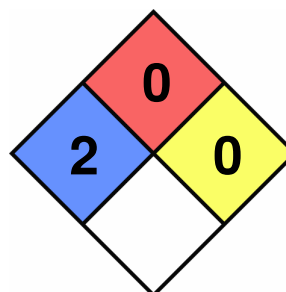
15.14. Japan - Existing and New Chemical Substances Inventory (ENCS)

Chemical Name	CAS Number	MITI No.
Hydroxylamine Hydrochloride	5470-11-1	(1)-375 (not considered as a new chemical substance)
Sodium Acetate Trihydrate	6131-90-4	(2)-692
Acetic Acid	64-19-7	(2)-688
Water	7732-18-5	- (listed on Japanese Pharmacopoeia 8th Edition)

SECTION 16: Other Information

16.1 National Fire Protection Associate (NFPA) Rating

Health: 2
Flammability: 0
Reactivity: 0
Special Hazard:



16.2 Document Revision

Last Revision Date:
 2026-05-07

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.