



Safety Data Sheet

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: Citrate-Cyanide Reducing Solution
for Lead Determination

Product Number: 2112

Other Identifying Product Numbers: 2112-1, 2112-16, 2112-32

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: 448 West Fork Drive
Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hr)

CHEMTREC (USA) 800-424-9300
CHEMTREC (International) 1+ 703-527-3887

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SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture (in accordance with OSHA HCS 29 CFR 1910.1200)

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statement	Precautionary Statements
Acute Toxicity - Oral	Category 2	H300	P264, P270, P301+P310, P321, P330, P405, P501
Acute Toxicity - Dermal	Category 3	H311	P280, P302+P352, P312, P321, P361, P405, P501
Acute Toxicity - Inhalation	Category 3	H331	P261, P271, P304+P340, P311, P321, P403+P233, P405, P501
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
Eye Damage / Irritation	Category 1	H318	P280, P305+P351+P338, P310
Skin Sensitizer	Category 1	H317	P261, P272, P280, P302+P352, P332+P313, P321, P363, P501
Carcinogenicity	Category 2	H351	P201, P202, P280, P308+P313, P405, P501
Reproductive Toxicity	Category 2	H361	P201, P202, P280, P308+P313, P405, P501
Specific Target Organs/Systemic Toxicity Following Single Exposure	Category 2	H371	P260, P264, P270, P308+P311, P405, P501
Specific Target Organs/Systemic Toxicity Following Repeated Exposure	Category 1	H372	P260, P264, P270, P314, P501
Corrosive to Metals	Category 1	H290	P234, P390, P406
Hazardous to the Aquatic Environment (Acute)	Category 2	H401	P273, P501
Hazardous to the Aquatic Environment (Chronic)	Category 2	H401	P273, P501

2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**



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Hazard Statements:

Hazard Number	Hazard Statement
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.



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Precautionary Statements:

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 container.
P260	Do not breathe dust, fumes or mist.
P261	Avoid breathing dust, fumes or mist.
P264	Wash arms, hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
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.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or physician.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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+P311	IF exposed or concerned: Call a POISON CENTER or physician.
P308+P313	IF exposed or concerned: Get medical attention.
P310	Immediately call a POISON CENTER or physician.
P311	Call a POISON CENTER or physician.
P312	Call a POISON CENTER or physician if you feel unwell.
P314	Get medical attention if you feel unwell.
P321	Specific treatment (Wash areas of contact with water immediately).
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical attention.
P361	Take off immediately all contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents in accordance with local, state, federal and international regulations.



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2.3. WHMIS Classification

WHMIS classification is not included based on the recommended option (Option 4) found in the Canada Gazette Part II, Vol. 149, No.3, page 458

2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	70.21%
Ammonium Hydroxide	NH ₄ OH	35.04 g/mol	1336-21-6	15.42%
Ammonium Citrate Dibasic	HOC(CO ₂ H) (CH ₂ CO ₂ NH ₄) ₂	226.18 g/mol	3012-65-5	12.23%
Potassium Cyanide	KCN	65.11 g/mol	151-50-8	1.22%
Sodium Sulfite	Na ₂ SO ₃	126.04 g/mol	7757-83-7	0.61%
Hydroxylamine Hydrochloride	NH ₂ OH·HCl	69.49 g/mol	5470-11-1	0.31%

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May cause irritation, redness, pain, and tearing.

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. May cause irritation and burns.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Dilute with large amounts of water. Do not induce vomiting. Vomiting may cause further damage due to the corrosive nature of this product. Call a physician.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Harmful if swallowed or inhaled. Corrosive liquid. Severe eye and skin irritant. Wash areas of contact with water for at least 15 minutes. If ingested, dilute with water, do not induce vomiting then call a physician. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause irritation and burns.

4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately).



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SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.

5.3. Special Protective Equipment for Firefighters

Use protective clothing and NIOSH-approved 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

Do not flush to sewer. Absorb with suitable material. Containerize for disposal with a hazardous waste disposal facility. Dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store in corrosive resistant container with a resistant inner liner. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Use with adequate ventilation. Store at room temperature

SECTION 8: Exposure Controls / Personal Protection

8.1. Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Potassium Cyanide (151-50-8)	TWA	USA	5 mg/m ³ TWA (as CN)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Potassium Cyanide (151-50-8)	TLV-Ceiling	USA	5 mg/m ³ Ceiling (as CN, listed under Hydrogen cyanide and Cyanide salts)	ACGIH - Threshold Limit Values - Ceilings (TLV-C)

8.2. Exposure Controls

Engineering Controls: Use only outdoors or in a well-ventilated area. A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limit.

Respiratory Protection: If the TLV is exceeded, a full-face chemical cartridge respirator may be worn up to 50 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less.

Skin Protection: Wear protective gloves and eye protection. Chemical resistant gloves.

Eye Protection: Wear protective gloves and eye protection. Safety glasses or goggles.



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8.3. Personal Protective Equipment

Wear protective gloves and eye protection. If the TLV is exceeded, a full-face chemical cartridge respirator may be worn up to 50 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Chemical resistant gloves. Safety glasses or goggles.

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Colorless to slightly colored liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: Data not available.

Melting/Freezing Point: Data not available.

Initial Boiling Point /Range: Approximately 100°C - Approximately 100°C

Flash Point: Data not available.

Evaporation Rate: Data not available.

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Vapor Pressure: Data not available.

Vapor Density: Data not available.

Relative Density: Data not available.

Solubility: Miscible

Partition Coefficient (n-Octanol/Water): Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: Data not available.

Oxidizing Properties: 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.



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10.3. Conditions to Avoid and Incompatible Materials

Keep only in original container. Strong Oxidizing Agents, acids, Calcium Hypochlorite bleach.

10.4. Hazardous Decomposition Products

Will not occur.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Fatal if swallowed. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. IF SWALLOWED: Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately). Rinse mouth. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Acute Toxicity - Dermal Exposure:

Toxic in contact with skin. Wear protective gloves and eye protection. IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Specific treatment (Wash areas of contact with water immediately). Take off immediately all contaminated clothing and wash it before reuse. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Acute Toxicity - Inhalation Exposure:

Toxic if inhaled. Avoid breathing dust, fumes or mist. Use only outdoors or in a well-ventilated area. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately). Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Acute Toxicity - Other Information:

LD50, Oral, Rat: 5 mg/kg (Potassium Cyanide), details of toxic effects not reported other than lethal dose value; 350 mg/kg (Ammonium Hydroxide), gastrointestinal, liver, kidney, ureter, bladder changes noted; 141 mg/kg (Hydroxylamine Hydrochloride) behavioral effects noted.

Skin Corrosion and Irritation:

Causes severe skin burns and eye damage. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Serious Eye Damage and Irritation:

Causes serious eye damage. Wear protective gloves and eye protection. 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 physician.

Respiratory Sensitization:

Not applicable.



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Skin Sensitization:

May cause an allergic skin reaction. Avoid breathing dust, fumes or mist. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves and eye protection. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical attention. Specific treatment (Wash areas of contact with water immediately). Wash contaminated clothing before reuse. Dispose of contents in accordance with local, state, federal and international regulations.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Suspected of causing cancer. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection. IF exposed or concerned: Get medical attention. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Reproductive Toxicity:

Suspected of damaging fertility or the unborn child. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection. IF exposed or concerned: Get medical attention. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Specific Target Organ Toxicity from Single Exposure:

May cause damage to organs. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. IF exposed or concerned: Call a POISON CENTER or physician. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Specific Target Organ Toxicity from Repeated Exposure:

Causes damage to organs through prolonged or repeated exposure. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Get medical attention if you feel unwell. Dispose of contents in accordance with local, state, federal and international regulations.

Aspiration Hazard:

Not applicable.

Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Toxic to aquatic life. Avoid release to the environment. Dispose of contents in accordance with local, state, federal and international regulations. Toxic to aquatic life. Avoid release to the environment. Dispose of contents in accordance with local, state, federal and international regulations.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

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12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

SECTION 14: Transportation Information

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

UN Number: UN2672

Proper Shipping Name: Ammonia Solution

Hazard Class: 8

Packing Group: III

Hazard Placard Labels:



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

UN Number: UN2672

Proper Shipping Name: Ammonia Solution

Hazard Class: 8

Packing Group: III

Hazard Placard Labels:



SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

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

Potassium Cyanide (CAS # 151-50-8): 10 lb EPCRA RQ

Potassium Cyanide (CAS # 151-50-8): 100 lb TPQ (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)



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

Ammonium Hydroxide (CAS # 1336-21-6): 1000 lb final RQ; 454 kg final RQ
Potassium Cyanide (CAS # 151-50-8): 10 lb final RQ; 4.54 kg final RQ
Ammonium Citrate Dibasic (CAS # 3012-65-5): 5000 lb final RQ; 2270 kg final RQ

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Ammonium Hydroxide (CAS # 1336-21-6): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)
Potassium Cyanide (CAS # 151-50-8): 1.0 % de minimis concentration (X+CN- where X = H+ or any other group where a formal dissociation can be made. For example KCN or Ca(CN)₂. Chemical Category N106)
Ammonium Citrate Dibasic (CAS # 3012-65-5): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)

15.5. Massachusetts Right-to-Know Substance List

Ammonium Hydroxide (CAS # 1336-21-6): Present
Potassium Cyanide (CAS # 151-50-8): Extraordinarily hazardous
Potassium Cyanide (CAS # 151-50-8): Present
Ammonium Citrate Dibasic (CAS # 3012-65-5): Present

15.6. Pennsylvania Right-to-Know Hazardous Substances

Ammonium Hydroxide (CAS # 1336-21-6): Environmental hazard
Ammonium Hydroxide (CAS # 1336-21-6): Present
Potassium Cyanide (CAS # 151-50-8): Environmental hazard
Potassium Cyanide (CAS # 151-50-8): Environmental hazard (listed under Cyanide)
Potassium Cyanide (CAS # 151-50-8): Present
Potassium Cyanide (CAS # 151-50-8): Present (listed under Cyanide)
Ammonium Citrate Dibasic (CAS # 3012-65-5): Environmental hazard
Ammonium Citrate Dibasic (CAS # 3012-65-5): Present
Water (CAS # 7732-18-5): Present

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

Ammonium Hydroxide (CAS # 1336-21-6): corrosive
Ammonium Hydroxide (CAS # 1336-21-6): sn 0103
Potassium Cyanide (CAS # 151-50-8): sn 0553
Potassium Cyanide (CAS # 151-50-8): SN 0553 TPQ: 500 lb
Potassium Cyanide (CAS # 151-50-8): sn 1562
Potassium Cyanide (CAS # 151-50-8): SN 1562 TPQ: 100 lb
Potassium Cyanide (CAS # 151-50-8): SN 2308 TPQ: 500 lb (Category Code N106, listed under Cyanide)
Potassium Cyanide (CAS # 151-50-8): sn 2308; sn 0553
Ammonium Citrate Dibasic (CAS # 3012-65-5): sn 0096

15.8. California Proposition 65

Potassium Cyanide (CAS # 151-50-8): carcinogen, initial date 7/5/13
Potassium Cyanide (CAS # 151-50-8): male reproductive toxicity, initial date 7/5/13



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

Ammonium Hydroxide (CAS # 1336-21-6): Present
Potassium Cyanide (CAS # 151-50-8): Present
Ammonium Citrate Dibasic (CAS # 3012-65-5): Present
Hydroxylamine Hydrochloride (CAS # 5470-11-1): Present
Water (CAS # 7732-18-5): Present
Sodium Sulfite (CAS # 7757-83-7): Present

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

Ammonium Hydroxide (CAS # 1336-21-6): Present
Potassium Cyanide (CAS # 151-50-8): Present
Ammonium Citrate Dibasic (CAS # 3012-65-5): Present
Hydroxylamine Hydrochloride (CAS # 5470-11-1): Present
Water (CAS # 7732-18-5): Present
Sodium Sulfite (CAS # 7757-83-7): Present

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

Not listed.

SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

May be corrosive to metals. Fatal if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Toxic if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs. Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic life.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves and eye protection.

IF SWALLOWED: Immediately call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER or physician. Get medical attention if you feel unwell. Specific treatment (Wash areas of contact with water immediately). If skin irritation occurs: Get medical attention. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant container with a resistant inner liner.

Dispose of contents in accordance with local, state, federal and international regulations.

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16.2. Miscellaneous Hazard Classes

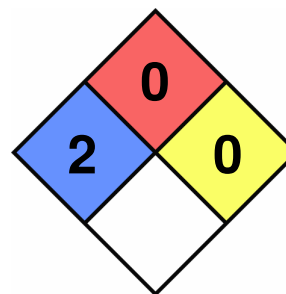
Canadian Carcinogenicity Hazard Class: Not Applicable.

Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.

Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.
Not Applicable.

16.3. National Fire Protection Association (NFPA) Rating

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



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16.4. Document Revision

Last Revision Date: 5/1/2015

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.