RICCA CHEMICAL COMPANY®

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation Nickel in Zinc Matrix II (80 mg/L Nickel in 20 g/L Zinc and 1.2 g/L Sulfuric Acid)

Product Number R5301600

Other Identifying Product Numbers R5301600-1A

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
Hazardous to the Aquatic Environment, Short-term (Acute)	Acute 2	H401	P273,P501
Hazardous to the Aquatic Environment, Long-term (Chronic)	Chronic 2	H411	P273,P391,P501

2.2. GHS Label Elements

Pictograms:



Signal Word:

Hazard Statements:

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

Hazard Number	Hazard Statement
H411	Toxic to aquatic life with long lasting effects

Precautionary Statements:

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

Prevention

Precautionary Number	Precautionary Statement
P273	Avoid release to the environment.

Response

Precautionary Number	Precautionary Statement
P391	Collect spillage.

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.

2.4. Ingredients of Unknown Acute Toxicity

8.4 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	91.44
zinc sulfate heptahydrate	Zinc Sulfate Heptahydrate; Sulfuric acid, zinc salt (1:1), heptahydrate	7446-20-0	8.39
sulfuric acid	Sulfuric Acid	7664-93-9	0.12
nitric acid	Nitric Acid	7697-37-2	< 0.1
nickel	Nickel	7440-02-0	< 0.1

SECTION 4: First-Aid Measures

4.1. Description of Necessary Measures

Eye Contact: May cause slight irritation.

Ingestion: Dilute with water or milk. Vomiting may occur spontaneously but do not induce. Call a physician immediately.

Inhalation: Not expected to require first aid. If necessary, remove to fresh air.

Skin Contact: May cause slight irritation.

4.2. Most Important Symptoms and Effects, Acute and Delayed

CAUTION! Mildly corrosive liquid. Contains low level of a known carcinogen. Avoid contact with skin, eyes, and clothing. If swallowed, dilute with water and call a physician. Wash areas of contact with plenty of water. EYE CONTACT: May cause slight irritation. SKIN CONTACT: May cause slight irritation.

4.3. Immediate Medical Attention or Special Treatment Needed

Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. 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. Dilute with water or milk. Vomiting may occur spontaneously but do not induce. Call a physician immediately.

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 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 appropriate PPE for the size and nature of the spill. As a general rule, wear safety glasses and gloves.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable inert material (vermiculite, dry sand, etc) and place in a chemical waste container for proper disposal. Do not flush to sewer. Dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

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

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

Chemical Name	CAS Number	Exposure Limit
Nickel	7440-02-0	1 mg/m3 TWA
Sulfuric Acid	7664-93-9	1 mg/m3 TWA
Nitric Acid	7697-37-2	2 ppm TWA; 5 mg/m3 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
Nitric Acid	7697-37-2	4 ppm STEL

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

Chemical Name	CAS Number	Exposure Limit
Nickel	7440-02-0	1.5 mg/m3 TWA (inhalable particulate matter)
Sulfuric Acid	7664-93-9	0.2 mg/m3 TWA (thoracic particulate matter)
Nitric Acid	7697-37-2	2 ppm TWA

8.2. Engineering Controls

No specific controls are needed. Normal room ventilation is adequate.

8.3. Individual Protective Measures and Personal Protective Equipment

Respiratory Protection: Normal room ventilation is adequate.

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:	Colorless to faintly green
Odor:	Data not available.
Odor Threshold:	Data not available.
Melting/Freezing Point:	Approximately 0°C
Boiling Point/Range:	Approximately 100°C
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:	< 2
Kinematic Viscosity:	Data not available.
Solubility:	miscible
Vapor Pressure:	Data not available.
Evaporation Rate:	Data not available.
Relative Density:	1.05
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

Lead, Calcium, Strontium salts, Borax, Alkali Carbonates and Hydroxides, Silver protein and Tannins.

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
Nickel	7440-02-0	Oral LD50 Rat >9000 mg/kg (powder suspended in mineral oil, Source: EU_RAR)
Zinc Sulfate Heptahydrate	7446-20-0	Oral LD50 Rat 1398 mg/kg (Source: Canada_WHMIS)
Sulfuric Acid	7664-93-9	Oral LD50 Rat 2140 mg/kg (Source: JAPAN_GHS)

Acute Toxicity - Dermal Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Zinc Sulfate Heptahydrate	7446-20-0	Dermal LD50 Rat >2000 mg/kg (Source: ECHA_API) As Zinc sulfate [7733-02-0]

Acute Toxicity - Inhalation Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Nickel	7440-02-0	Inhalation LC50 Rat >10.2 mg/L 1 h (no deaths occurred, dust, Source: EU_RAR)
Sulfuric Acid	7664-93-9	Inhalation LC50 Rat 0.375 mg/L 4 h (aerosol, Source: OECD_SIDS)
Nitric Acid	7697-37-2	Inhalation LC50 Rat 3.22 mg/L 4 h (Source: WHMIS)

11.2 Carcinogenicity:

International Agency for Research on Cancer (IARC)

Chemical Name	CAS Number	Classification
Nickel	7440-02-0	Group 2B (Possibly Carcinogenic to Humans) - Monograph 49 [1990]; Supplement 7 [1987]
Sulfuric Acid	7664-93-9	Group 1 (Carcinogenic to Humans) - Monograph 54 [1992] (occupational exposure to mists and vapours from sulfuric acid and other strong inorganic acids)
Nitric Acid	7697-37-2	Group 1 (Carcinogenic to Humans) - Monograph 100F [2012]; Monograph 54 [1992] As Acid mists, strong inorganic

National Toxicology Program (NTP)

Chemical Name	CAS Number	Classification
Nickel	7440-02-0	Reasonably Anticipated To Be A Human Carcinogen (listed under Nickel compounds and metallic nickel)
Sulfuric Acid	7664-93-9	Known Human Carcinogen (listed under Strong inorganic acid mists containing sulfuric acid)

U.S. OSHA specifically regulated carcinogens

Chemical Name	CAS Number	Classification
	No data found.	

11.3 Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

Chemical Name	CAS Number	Species	Exposure	Toxicity
Zinc Sulfate Heptahydrate	7446-20-0	Earthworm	Acute	"LC50 2 Days Eisenia foetida 733 mg/kg [soil dry weight] (IUCLID)" As Zinc sulphate [7733-02-0]
Nickel	7440-02-0	Freshwater Algae	Acute	EC50 72 h Pseudokirchneriella subcapitata 0.18 mg/L (IUCLID); EC50 96 h Pseudokirchneriella subcapitata 0.174 - 0.311 mg/L [static] (EPA)
Zinc Sulfate Heptahydrate	7446-20-0	Freshwater Algae	Acute	"EC50 72 h Pseudokirchneriella subcapitata 0.056 mg/L [static] (EPA)" As Zinc sulfate [7733-02-0]
Nickel	7440-02-0	Freshwater Fish	Acute	LC50 96 h Brachydanio rerio >100 mg/L (IUCLID); LC50 96 h Cyprinus carpio 1.3 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 10.4 mg/L [static] (EPA)
Zinc Sulfate Heptahydrate	7446-20-0	Freshwater Fish	Acute	"LC50 96 h Oncorhynchus mykiss 0.162 mg/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 0.03 - 0.05 mg/L [semi-static] (EPA); LC50 96 h Oncorhynchus mykiss 0.34 - 0.93 mg/L [static] (EPA); LC50 96 h Pimephales promelas 0.218 - 0.42 mg/L [flow-through] (EPA); LC50 96 h Pimephales promelas 0.06 mg/L [static] (EPA); LC50 96 h Pimephales promelas 0.23 - 0.48 mg/L (EPA); LC50 96 h Pimephales promelas 0.168 - 0.25 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 0.15 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 16.85 - 27.18 mg/L [static] (EPA); LC50 96 h Lepomis macrochirus 3 - 4.6 mg/L [flow-through] (EPA); LC50 96 h Lepomis macrochirus 3.55 - 6.32 mg/L [static] (EPA); LC50 96 h Poecilia reticulata 0.63 mg/L (EPA); LC50 96 h Poecilia reticulata 49.23 - 64.16 mg/L [semi-static] (EPA); LC50 96 h Poecilia reticulata 0.48 - 1.72 mg/L [static] (EPA)" As Zinc sulfate [7733-02-0]
Sulfuric Acid	7664-93-9	Freshwater Fish	Acute	LC50 96 h Brachydanio rerio >500 mg/L [static] (IUCLID)
Nickel	7440-02-0	Water Flea	Acute	EC50 48 h Daphnia magna >100 mg/L (IUCLID); EC50 48 h Daphnia magna 1 mg/L [Static] (EPA)
Zinc Sulfate Heptahydrate	7446-20-0	Water Flea	Acute	"EC50 48 h Daphnia magna 0.75 mg/L (IUCLID); EC50 48 h Daphnia magna 0.538 - 0.908 mg/L [Static] (EPA)" As Zinc sulfate [7733-02-0]

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.

SECTION 14: Transportation Information

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

Not regulated according to DOT regulations.

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

Not regulated according to IATA Dangerous Goods Regulations.

14.3 Transportation of Dangerous Goods (TDG, Canada)

Not regulated according to TDG regulations.

SECTION 15: Regulatory Information

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

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	TPQ
Sulfuric Acid	7664-93-9	1000 lb TPQ	1000 lb EPCRA RQ
Nitric Acid	7697-37-2	1000 lb TPQ	1000 lb EPCRA RQ

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

Chemical Name	CAS Number	Regulatory Information
Nickel	7440-02-0	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
Zinc Sulfate Heptahydrate	7446-20-0	"1000 lb final RQ; 454 kg final RQ" As Zinc sulfate [7733-02-0]
Sulfuric Acid	7664-93-9	1000 lb final RQ; 454 kg final RQ
Nitric Acid	7697-37-2	1000 lb final RQ; 454 kg final RQ

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

Chemical Name	CAS Number	List	Regulatory Information
Nickel	7440-02-0	Emission Reporting	0.1 % de minimis concentration
Zinc Sulfate Heptahydrate	7446-20-0	Emission Reporting	"1.0 % de minimis concentration (includes any unique chemical substance that contains Zinc as part of that chemical's infrastructure, listed under Chemical Category N982)" As Zinc compounds [RR-00578-7]
Sulfuric Acid	7664-93-9	Emission Reporting	1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
Nitric Acid	7697-37-2	Emission Reporting	1.0 % de minimis concentration

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

15.05. Massachusetts Right-to-Know Substance List

Chemical Name	CAS Number	Regulatory Information
Nickel	7440-02-0	Carcinogen; Extraordinarily hazardous
Zinc Sulfate Heptahydrate	7446-20-0	"Present" As Zinc sulfate [7733-02-0]
Sulfuric Acid	7664-93-9	Extraordinarily hazardous
Nitric Acid	7697-37-2	Extraordinarily hazardous

15.06. Pennsylvania Right-to-Know Hazardous Substances

Chemical Name	CAS Number	Regulatory Information
Nickel	7440-02-0	Environmental hazard; Special hazardous substance
Zinc Sulfate Heptahydrate	7446-20-0	"Environmental hazard" As Sulfuric acid, zinc salt (1:1) [7733-02-0]; "Environmental hazard" As Zinc compounds [RR-00578-7]
Sulfuric Acid	7664-93-9	Environmental hazard
Nitric Acid	7697-37-2	Environmental hazard

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

Chemical Name	CAS Number	Regulatory Information
Nickel	7440-02-0	sn 1341
Zinc Sulfate Heptahydrate	7446-20-0	"sn 2044" As Zinc sulfate [7733-02-0]; "sn 3012" As Zinc compounds [RR-00578-7]
Sulfuric Acid	7664-93-9	sn 1761
Nitric Acid	7697-37-2	sn 1356

15.08. California Proposition 65

Chemical Name	CAS Number	Regulatory Information
Nickel	7440-02-0	carcinogen, 10/1/1989 (metallic)
Sulfuric Acid	7664-93-9	"carcinogen, 3/14/2003" As Strong inorganic acid mists containing sulfuric acid [RR-03978-1]

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

Chemical Name	CAS Number	List	Status
Nickel	7440-02-0	DSL	Present
Zinc Sulfate Heptahydrate	7446-20-0	DSL	Present
Sulfuric Acid	7664-93-9	DSL	Present
Nitric Acid	7697-37-2	DSL	Present
Water	7732-18-5	DSL	Present

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

Chemical Name	CAS Number	Status
Nickel	7440-02-0	Present (ACTIVE)
Zinc Sulfate Heptahydrate	7446-20-0	"Present (ACTIVE)" As Sulfuric acid, zinc salt (1:1) [7733-02-0]
Sulfuric Acid	7664-93-9	Present (ACTIVE)
Nitric Acid	7697-37-2	Present (ACTIVE)
Water	7732-18-5	Present [XU] (ACTIVE)

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
Nickel	7440-02-0	EINECS	231-111-4
Zinc Sulfate Heptahydrate	7446-20-0	EINECS	"231-793-3" As Zinc sulphate [7733-02-0]
Sulfuric Acid	7664-93-9	EINECS	231-639-5
Nitric Acid	7697-37-2	EINECS	231-714-2
Water	7732-18-5	EINECS	231-791-2

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

Chemical Name	CAS Number	Status
Nickel	7440-02-0	Present [25343]
Zinc Sulfate Heptahydrate	7446-20-0	Present [25747]
Sulfuric Acid	7664-93-9	Present [23017]
Nitric Acid	7697-37-2	Present [35578]
Water	7732-18-5	Present [32224]

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

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

Chemical Name	CAS Number	List	Status
Nickel	7440-02-0	Annex 1	Present [KE-25818]
Zinc Sulfate Heptahydrate	7446-20-0	Annex 1	"Present [KE-35582]" As Zinc sulfate [7733-02-0]
Zinc Sulfate Heptahydrate	7446-20-0	Annex 3	"Present (97-1-91)" As Inorganic zinc salts [RR-04199-6]
Sulfuric Acid	7664-93-9	Annex 1	Present [KE-32570]
Nitric Acid	7697-37-2	Annex 1	Present [KE-25911]
Water	7732-18-5	Annex 1	Present [KE-35400]

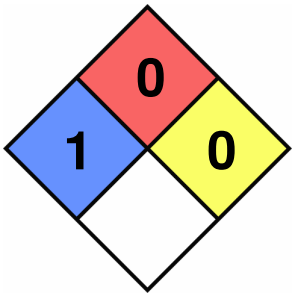
15.14. Japan - Existing and New Chemical Substances Inventory (ENCS)

Chemical Name	CAS Number	MITI No.
Nickel	7440-02-0	- (exempt)
Zinc Sulfate Heptahydrate	7446-20-0	(1)-542
Sulfuric Acid	7664-93-9	(1)-430
Nitric Acid	7697-37-2	(1)-394
Water	7732-18-5	- (listed on Japanese Pharmacopoeia 8th Edition)

SECTION 16: Other Information

16.1 National Fire Protection Associate (NFPA) Rating

Health: 1
Flammability: 0
Reactivity 0
Special Hazard:



16.2 Document Revision

Last Revision Date:
2026-05-25

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.