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## Material Safety Data Sheet

Material Name: Reticulum II Silver A

MSDS ID: 00231380

### \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

#### Manufacturer Information

VENTANA MEDICAL SYSTEMS INC.  
1910 E. Innovation Park Drive  
Tucson, AZ 85755  
Phone: (520) 887-2155

EMERGENCY TELEPHONE NUMBER:  
(800) 424-9300 (USA/Canada)  
CHEMTREC: +1 (703) 527-3887 (International)

## Material Name: Reticulum II Silver A

#### Product Number(s)

860-024, 1504084, 5279399001, 06038638001

#### Product Use

clinical/research

### \*\*\* Section 2 - Hazards Identification \*\*\*

**NFPA Ratings:** Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

#### Preparation

This material is not classified.

#### EMERGENCY OVERVIEW

**Color:** colorless

**Physical Form:** liquid

**Odor:** odorless

**Major Health Hazards:** harmful if swallowed, respiratory tract irritation, skin irritation, eye irritation

### POTENTIAL HEALTH EFFECTS

#### Inhalation

**Short Term:** irritation, difficulty breathing, cough, nausea, headache, difficulty speaking, vomiting, irregular heartbeat, changes in blood pressure, chest pain, lung congestion, bluish skin color

**Long Term:** irritation, lung damage

#### Skin

**Short Term:** irritation

**Long Term:** irritation

#### Eye

**Short Term:** irritation, tearing, eye damage

**Long Term:** irritation

#### Ingestion

**Short Term:** irritation

**Long Term:** irritation

#### OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### \*\*\* Section 3 - Composition/Information on Ingredients \*\*\*

CAS #	Component / EU Number	Percent	Symbol(s)	Risk Phrase(s)
Not Available	NON-HAZARDOUS	60-100	---	---
1336-21-6	AMMONIUM HYDROXIDE 215-647-6	1-5	C N	R:34-50
534-16-7	SILVER CARBONATE 208-590-3	1-5	---	---

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## Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Silver compounds, Silver salts.

### \*\*\* Section 4 - First Aid Measures \*\*\*

#### Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

#### Skin

Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Get medical attention, if needed.

#### Eyes

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

#### Ingestion

If a large amount is swallowed, get medical attention.

### \*\*\* Section 5 - Fire-Fighting Measures \*\*\*

See Section 9 for Flammability Properties

#### Flammable Properties

Negligible fire hazard.

#### Extinguishing Media

Use extinguishing agents appropriate for surrounding fire.

#### Fire Fighting Measures

Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products.

#### Hazardous Combustion Products

**Thermal decomposition or combustion products:** oxides of nitrogen, silver, oxides of silver

#### Sensitivity to Mechanical Impact

Not sensitive

#### Sensitivity to Static Discharge

Not sensitive

### \*\*\* Section 6 - Accidental Release Measures \*\*\*

#### Occupational Spill/Release

Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

### \*\*\* Section 7 - Handling and Storage \*\*\*

#### Handling Procedures

Wash thoroughly after handling.

#### Storage Procedures

Store and handle in accordance with all current regulations and standards. Store between 2 C and 8 C. See original container for storage recommendations. Keep separated from incompatible substances.

### \*\*\* Section 8 - Exposure Controls/Personal Protection \*\*\*

#### Exposure Limits

##### AMMONIUM HYDROXIDE (1336-21-6)

Finland: 50 ppm STEL; 36 mg/m<sup>3</sup> STEL  
20 ppm TWA; 14 mg/m<sup>3</sup> TWA

##### SILVER CARBONATE (534-16-7)

Germany: 0.01 mg/m<sup>3</sup> MAK (inhalable fraction, as Ag)  
0.02 mg/m<sup>3</sup> Peak (as Ag, inhalable fraction)  
Japan 0.01 mg/m<sup>3</sup> OEL (as Ag)

#### Ventilation

Provide adequate ventilation. Ensure compliance with applicable exposure limits.

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## PERSONAL PROTECTIVE EQUIPMENT

### Eyes/Face

Safety glasses or goggles are recommended when there is a potential for eye contact. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

### Protective Clothing

Lab coat or apron.

### Glove Recommendations

Wear appropriate chemical resistant gloves.

### Protective Materials

latex, nitrile

### Respiratory Protection

No respirator is required under normal conditions of use.

## \*\*\* Section 9 - Physical and Chemical Properties \*\*\*

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	clear
<b>Color:</b>	colorless	<b>Physical Form:</b>	liquid
<b>Odor:</b>	odorless	<b>Odor Threshold:</b>	Not available
<b>pH:</b>	11.4	<b>Melting/Freezing Point:</b>	Not available
<b>Boiling Point:</b>	Not available	<b>Decomposition:</b>	Not available
<b>Flash Point:</b>	not flammable	<b>Evaporation Rate:</b>	Not available
<b>LEL:</b>	Not available	<b>UEL:</b>	Not available
<b>Vapor Pressure:</b>	Not available	<b>Vapor Density (air = 1):</b>	Not available
<b>Density:</b>	Not available	<b>Specific Gravity (water = 1):</b>	Not available
<b>Water Solubility:</b>	miscible	<b>Log KOW:</b>	Not available
<b>Coeff. Water/Oil Dist.:</b>	Not available	<b>Auto Ignition:</b>	Not available
<b>Viscosity:</b>	Not available	<b>Volatility:</b>	Not available

## \*\*\* Section 10 - Stability and Reactivity \*\*\*

### Chemical Stability

Stable at normal temperatures and pressure.

### Conditions to Avoid

None reported.

### Materials to Avoid

reducing agents, ammonia, bases, alcohols, magnesium

### Decomposition Products

**Thermal decomposition or combustion products:** oxides of nitrogen, silver, oxides of silver

### Possibility of Hazardous Reactions

Will not polymerize.

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute and Chronic Toxicity

#### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

#### **AMMONIUM HYDROXIDE (1336-21-6)**

Oral LD50 Rat 350 mg/kg

#### **SILVER CARBONATE (534-16-7)**

Oral LD50 Rat 3731 mg/kg

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## RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

### AMMONIUM HYDROXIDE (1336-21-6)

Oral: 350 mg/kg Oral Rat LD50

### SILVER CARBONATE (534-16-7)

Oral: 3731 mg/kg Oral Rat LD50

## Acute Toxicity Level

### AMMONIUM HYDROXIDE (1336-21-6)

Toxic: ingestion.

### SILVER CARBONATE (534-16-7)

Moderately Toxic: ingestion.

## Irritation/Corrosivity

### RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

### AMMONIUM HYDROXIDE (1336-21-6)

1 mg/30 second(s) Eyes Rabbit severe; 250 ug Eyes Rabbit severe; 44 ug Eyes Rabbit severe

## Local Effects

### AMMONIUM HYDROXIDE (1336-21-6)

Corrosive: inhalation, skin, eye, ingestion.

## Carcinogenicity

### Component Carcinogenicity

None of the substances in this preparation are listed by ACGIH, OSHA, NIOSH, NTP, IARC, Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, or United Kingdom.

## Mutagenic

No data available for the mixture.

### RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

## Reproductive Effects

No data available for the mixture.

### RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes data for one or more components.

## Tumorigenic

No data available for the mixture.

### RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

## Medical Conditions Aggravated by Exposure

None known.

## \*\*\* Section 12 - Ecological Information \*\*\*

### Component Analysis - Aquatic Toxicity

#### AMMONIUM HYDROXIDE (1336-21-6)

Fish: 96 Hr LC50 Pimephales promelas: 8.2 mg/L

Invertebrate: 48 Hr EC50 water flea: 0.66 mg/L; 48 Hr EC50 Daphnia pulex: 0.66 mg/L

## Mobility

No data available for the mixture.

## Persistence & Degradation

No data available for the mixture.

## Bioaccumulative Potential

No data available for the mixture.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### Disposal Methods

Dispose in accordance with all applicable regulations. Hazardous Waste Number(s): D011. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 5.0 mg/L.

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## Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

### \*\*\* Section 14 - Transport Information \*\*\*

#### US DOT Information

Not regulated.

#### TDG Information

Not regulated.

#### ADR Information

Not regulated.

#### RID Information

Not regulated.

#### IATA Information

Not regulated.

#### ICAO Information

Not regulated.

#### IMDG Information

Not regulated.

### \*\*\* Section 15 - Regulatory Information \*\*\*

#### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

##### AMMONIUM HYDROXIDE (1336-21-6)

CERCLA: 1000 lb final RQ; 454 kg final RQ

##### SILVER CARBONATE (534-16-7)

SARA 313: 1.0 % de minimis concentration (Chemical Category N740)

#### SARA 311/312

Acute Health: Yes Chronic Health: No Fire: No Pressure: No Reactive: No

#### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component / EC Number	CAS	CA	MA	MN	NJ	PA	RI
AMMONIUM HYDROXIDE	1336-21-6	Yes	Yes	No	Yes	Yes	No
SILVER CARBONATE (related to: Silver compounds)	534-16-7	Yes <sup>1</sup>	No	No	No	Yes <sup>1</sup>	No

#### California Proposition 65

Not regulated under California Proposition 65

#### Canadian Regulations

##### Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

##### AMMONIUM HYDROXIDE (1336-21-6)

1 %

##### WHMIS Classification

D2B.

#### European Regulations

This preparation has been classified for the European Union according to Annex VI Directives 67/548/EEC and 99/45/EC.

#### Germany Water Classification

##### AMMONIUM HYDROXIDE (1336-21-6)

Number 211, hazard class 2 - hazard to waters

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## EU Marking and Labelling

This material is not classified.

## Japanese Regulations

### Japan Designated Chemical Substances (PRTR Law)

No components of this material are subject to reporting requirements as specified by the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management" nor are they included in the "Pollutant Release and Transfer Register (PRTR)" of designated chemicals.

### Japan Poisonous and Deleterious Substances

No components of this material are specified as poisonous or deleterious substances, as regulated by Japan under the Poisonous and Deleterious Substances Control Law.

### Industrial Safety and Health Law - Flammable Materials

No components of this material are specifically identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.

### Industrial Safety and Health Law - Label Disclosure

No components of this material are specifically required to be indicated on a container label as specified by Article 18 of the Enforcement Order of the Industrial Safety and Health Law.

### Industrial Safety and Health Law - Organic Solvents

No components of this material are specifically identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.

## \*\*\* Section 16 - Other Information \*\*\*

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

### Full text of R phrases in Section 3

**R34** Causes burns.

**R50** Very toxic to aquatic organisms.

### Other Information

Limitations: The information and recommendations set forth in this MSDS are believed to be correct as of this date. Ventana Medical Systems, Inc. makes no warranty with respect to the content of this MSDS and disclaims all liability from reliance thereon.

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MSDS Update: 10/12/2010

End of Sheet 00231380