



a member of the Roche Group

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

*** 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: GMS Silver B

Product Number(s)

860-007, 860-024, 1504018, 1562805, 06038093001, 06042520001, 5279232001, 5412749001

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

Repr.Cat.2,,Xi; R:43-60-61

Risks

May cause sensitization by skin contact.
May impair fertility.
May cause harm to the unborn child.

EMERGENCY OVERVIEW

Color: colorless

Physical Form: liquid

Odor: odorless

Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, allergic reactions, kidney damage, reproductive effects

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, difficulty breathing, allergic reactions, nausea, vomiting, diarrhea, drowsiness, fever, headache, irregular heartbeat, tremors, dizziness, loss of coordination, skin disorders, stomach pain, lung congestion, internal bleeding, blood disorders, heart damage, kidney damage, convulsions, coma

Long Term: allergic reactions, loss of voice, weight loss, nausea, diarrhea, vomiting, difficulty breathing, loss of appetite, emotional disturbances, skin disorders, blood disorders, kidney damage, convulsions, reproductive effects

Skin

Short Term: irritation, allergic reactions, absorption may occur, nausea, vomiting, diarrhea, drowsiness, fever, headache, irregular heartbeat, tremors, dizziness, difficulty breathing, loss of coordination, stomach pain, skin disorders, kidney damage, lung congestion, internal bleeding, blood disorders, heart damage, convulsions, coma

Long Term: irritation, allergic reactions, absorption may occur, weight loss, nausea, loss of appetite, loss of voice, vomiting, difficulty breathing, emotional disturbances, blood disorders, skin disorders, convulsions, kidney damage, reproductive effects, diarrhea

Eye

Short Term: irritation, blurred vision, eye damage

Long Term: irritation

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

Ingestion

Short Term: irritation, nausea, vomiting, diarrhea, stomach pain, headache, irregular heartbeat, drowsiness, fever, tremors, dizziness, loss of coordination, skin disorders, difficulty breathing, lung congestion, internal bleeding, blood disorders, heart damage, kidney damage, convulsions, coma

Long Term: irritation, rash, nausea, vomiting, diarrhea, stomach pain, weight loss, skin disorders, loss of appetite, loss of voice, convulsions, emotional disturbances, difficulty breathing, blood disorders, kidney damage, reproductive effects

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	---	---
100-97-0	HEXAMINE 202-905-8	10-30	F Xi	R:11-43
1303-96-4	SODIUM BORATE DECAHYDRATE 215-540-4	1-5	T	R:60-61

*** Section 4 - First Aid Measures ***

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. 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.

Note to Physicians

For inhalation, consider oxygen.

*** 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 boron, oxides of carbon, oxides of nitrogen, oxides of sodium

Sensitivity to Mechanical Impact

Not sensitive

Sensitivity to Static Discharge

Not sensitive

*** Section 6 - Accidental Release Measures ***

Occupational Spill/Release

Stop leak if possible without personal risk. **Small spills:** Absorb with sand or other non-combustible material.

Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

*** 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 at room temperature. 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

HEXAMINE (100-97-0)

Germany (DFG): skin sensitizer

Sweden: 3 mg/m3 LLV

5 mg/m3 STV

Sensitizer

SODIUM BORATE DECAHYDRATE (1303-96-4)

ACGIH: 2 mg/m3 TWA (inhalable fraction)

6 mg/m3 STEL (inhalable fraction)

NIOSH: 5 mg/m3 TWA

OSHA: 10 mg/m3 TWA

Belgium: 6 mg/m3 STEL (as borate)

2 mg/m3 TWA (as borate)

Denmark: 2 mg/m3 TWA

Potential for cutaneous absorption

France: 5 mg/m3 VME

Greece: 10 mg/m3 TWA

Ireland: 5 mg/m3 TWA

Portugal: 2 mg/m3 TWA (inhalable fraction)

6 mg/m3 STEL (inhalable fraction)

Spain: 5 mg/m3 VLA-ED

United Kingdom: 15 mg/m3 STEL (calculated)

5 mg/m3 TWA

Ventilation

Provide adequate ventilation. Ensure compliance with applicable exposure limits.

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, vinyl, nitrile

Respiratory Protection

No respirator is required under normal conditions of use.

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

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

Physical State:	Liquid	Appearance:	Clear, colorless liquid
Color:	colorless	Physical Form:	liquid
Odor:	odorless	Odor Threshold:	Not available
pH:	9.6-9.9	Decomposition:	Not available
Flash Point:	not flammable	Evaporation Rate:	Not available
LEL:	Not available	UEL:	Not available
Vapor Pressure:	Not available	Vapor Density (air = 1):	Not available
Density:	Not available	Water Solubility:	miscible
Log KOW:	Not available	Coeff. Water/Oil Dist.:	Not available
Auto Ignition:	Not available	Viscosity:	Not available
Volatility:	Not available		

*** Section 10 - Stability and Reactivity***

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Protect from freezing. Keep separated from incompatible substances.

Materials to Avoid

acid anhydrides, potassium

Decomposition Products

Thermal decomposition or combustion products: oxides of boron, oxides of carbon, oxides of nitrogen, oxides of sodium

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:

HEXAMINE (100-97-0)

Oral LD50 Rat 9200 mg/kg

SODIUM BORATE DECAHYDRATE (1303-96-4)

Oral LD50 Rat 2660 mg/kg

RTECS Acute Toxicity (selected)

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

HEXAMINE (100-97-0)

Oral: 569 mg/kg Oral Mouse LD50

SODIUM BORATE DECAHYDRATE (1303-96-4)

Oral: 2660 mg/kg Oral Rat LD50

Acute Toxicity Level

HEXAMINE (100-97-0)

Moderately Toxic: ingestion

SODIUM BORATE DECAHYDRATE (1303-96-4)

Moderately Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

Local Effects

HEXAMINE (100-97-0)

Irritant: inhalation, skin, eye

Target Organs

HEXAMINE (100-97-0)

immune system (sensitizer)

SODIUM BORATE DECAHYDRATE (1303-96-4)

central nervous system, kidneys

Carcinogenicity

Component Carcinogenicity

SODIUM BORATE DECAHYDRATE (1303-96-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Portugal: A4 - Not Classifiable as a Human Carcinogen

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

Available data characterizes this substance as a reproductive hazard.

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

kidney disorders, liver disorders

Additional Data

May be excreted in breast milk. Interactions with drugs may occur.

*** Section 12 - Ecological Information ***

Component Analysis - Aquatic Toxicity

HEXAMINE (100-97-0)

Fish: 96 Hr LC50 Pimephales promelas: 44600-55600 mg/L [flow-through]

Invertebrate: 48 Hr EC50 Daphnia magna: 29868 - 43390 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.

Component Waste Numbers

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

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

*** 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

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312

Acute Health: Yes Chronic Health: Yes 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
HEXAMINE	100-97-0	No	No	No	Yes	No	No
SODIUM BORATE DECAHYDRATE	1303-96-4	Yes	Yes	Yes	Yes	Yes	Yes

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:

HEXAMINE (100-97-0)

0.1 %

SODIUM BORATE DECAHYDRATE (1303-96-4)

1 %

WHMIS Classification

D2A, 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

HEXAMINE (100-97-0)

ID Number 1568, hazard class 1 - low hazard to waters

SODIUM BORATE DECAHYDRATE (1303-96-4)

ID Number 37, hazard class 1 - low hazard to waters

Candidate List of Substances Subject to Authorization

The following component(s) are included on the Candidate List of Substances Subject to Authorization (EU-REACH 1907/2006) - Article 59(1).

SODIUM BORATE DECAHYDRATE (1303-96-4)

Reason for inclusion: Toxic to reproduction, Article 57c

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

EU Marking and Labelling

Symbols

T Toxic

Risk Phrases

R43 May cause sensitization by skin contact.

R60 May impair fertility.

R61 May cause harm to the unborn child.

Safety Phrases

S24 Avoid contact with skin.

S37 Wear suitable gloves.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S60 This material and its container must be disposed of as hazardous waste.

Japanese Regulations

Japan Designated Chemical Substances (PRTR Law)

The following components 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" and are included in the "Pollutant Release and Transfer Register (PRTR)" of designated chemicals.

HEXAMINE (100-97-0)

258 1 %

SODIUM BORATE DECAHYDRATE (1303-96-4)

405 1 % [as B, 0.113]

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.

Material Safety Data Sheet

Material Name: GMS Silver B

MSDS ID: 00231580

* * * 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

R11 Highly flammable.
R43 May cause sensitization by skin contact.
R60 May impair fertility.
R61 May cause harm to the unborn child.

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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End of Sheet 00231580