



a member of the Roche Group

Material Safety Data Sheet

Material Name: Iron Reagent A

MSDS ID: 00231573

*** 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: Iron Reagent A

Product Number(s)

860-009, 1504027, 05279259001, 06038158001

Product Use

clinical/research

*** Section 2 - Hazards Identification ***

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

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

Substance/Preparation Classification

This material is not classified.

EMERGENCY OVERVIEW

Color: yellow

Physical Form: liquid

Odor: odorless

Major Health Hazards: No significant target effects reported.

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, cough, sore throat, irregular heartbeat, headache, dizziness, bluish skin color, convulsions, unconsciousness, coma

Long Term: no information on significant adverse effects

Skin

Short Term: irritation

Long Term: irritation

Eye

Short Term: irritation

Long Term: no information on significant adverse effects

Ingestion

Short Term: nausea, vomiting, diarrhea, irregular heartbeat, headache, dizziness, bluish skin color, convulsions, unconsciousness, coma

Long Term: no information on significant adverse effects

OSHA Regulatory Status

This material is not 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	---	---
14459-95-1	POTASSIUM FERROCYANIDE TRIHYDRATE	7-13	---	---

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Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Cyanide compounds, inorganic, n.o.s., Cyanide compounds.

*** 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: hydrogen cyanide, oxides of carbon, oxides of nitrogen

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 at room temperature. See original container for storage recommendations. Keep separated from incompatible substances.

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*** Section 8 - Exposure Controls/Personal Protection ***
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Exposure Limits

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

- NIOSH:** 25 mg/m3 IDLH (except Hydrogen cyanide, as CN)
- OSHA:** 5 mg/m3 TWA
5 mg/m3 TWA (as CN)
prevent or reduce skin absorption
- Finland:** 10 mg/m3 STEL (as CN)
5 mg/m3 TWA (as CN)
Potential for cutaneous absorption
- France:** 5 mg/m3 VME (as CN)
Risk of cutaneous absorption
- Germany:** 2 mg/m3 MAK (inhalable fraction, as CN)
2 mg/m3 Peak (as CN, inhalable fraction)
- Greece:** 5 mg/m3 TWA (as CN)
skin - potential for cutaneous absorption
- Ireland:** 5 mg/m3 TWA (except Hydrogen cyanide, Cyanogen, and Cyanogen chloride, as CN)
Potential for cutaneous absorption
- Netherlands:** 10 mg/m3 STEL (as CN)
1 mg/m3 TWA
skin notation
- Sweden:** 5 mg/m3 CLV (as CN)
Skin notation
- United Kingdom:** 15 mg/m3 STEL (except HCN, Cyanogen, Cyanogen chloride)
5 mg/m3 TWA (except HCN, Cyanogen, Cyanogen chloride, as CN)
Potential for cutaneous absorption

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.

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

Physical State:	Liquid	Appearance:	Clear yellow liquid
Color:	yellow	Physical Form:	liquid
Odor:	odorless	Odor Threshold:	Not available
pH:	8.7	Melting/Freezing Point:	Not available
Boiling Point:	Not available	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	Specific Gravity (water = 1):	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

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

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

None reported.

Materials to Avoid

acids, ammonia, nitrates, nitrite salts, oxidizing materials, sodium chromate

Decomposition Products

Thermal decomposition or combustion products: hydrogen cyanide, oxides of carbon, oxides of nitrogen

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 no selected endpoints have been identified.

RTECS Acute Toxicity (selected)

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

Irritation/Corrosivity

RTECS Irritation

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

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.

Reproductive Effects

No data available for the mixture.

Tumorigenic

No data available for the mixture.

Medical Conditions Aggravated by Exposure

None known.

*** Section 12 - Ecological Information ***

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

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.

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*** Section 14 - Transport Information ***

US DOT Information

Not regulated.

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component / EC Number	CAS	
POTASSIUM FERROCYANIDE TRIHYDRATE	14459-95-1	DOT regulated marine pollutant

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.

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

SARA 313: 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)

SARA 311/312

Acute Health: No **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
POTASSIUM FERROCYANIDE TRIHYDRATE (*related to: Cyanide compounds)	14459-95-1	No	No	No	No	Yes ¹	Yes ¹

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:

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

1 %

WHMIS Classification

Not a Controlled Product under Canada's Workplace Hazardous Material Information System.

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

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

Number 489, hazard class 2 - hazard to waters

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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.

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

144 (except complex salts and cyanates)

Japan Poisonous and Deleterious Substances

The following components are specified as poisonous and deleterious substances, and are regulated by Japan under the Poisonous and Deleterious Substances Control Law.

POTASSIUM FERROCYANIDE TRIHYDRATE (14459-95-1)

Poisonous

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

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.

MSDS Update: 10/8/2010

End of Sheet 00231573