a member of the Roche Group

Material Safety Data Sheet

Material Name: Hematoxylin Counterstain **MSDS ID: 00231362**

* * * 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: Hematoxylin Counterstain

Product Number(s)

860-014, 1504054, 5279291001, 06038395001

Product Use

clinical/research

* * * Section 2 - Hazards Identification* * *

NFPA Ratings: Health: 2 **Fire:** 1 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Preparation

Xi,Xn; R:22-36/37/38

Risks

Harmful if swallowed.
Irritating to eyes, respiratory system and skin.

EMERGENCY OVERVIEW

Color: red or purple
Physical Form: liquid
Odor: faint odor, vinegar odor
Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, headache, drowsiness, dizziness, loss of coordination, blood disorders
Long Term: irritation, headache

Skin

Short Term: irritation, allergic reactions, absorption may occur, nausea, vomiting, stomach pain, difficulty breathing, headache, drowsiness, dizziness, disorientation, hyperactivity, emotional disturbances, hallucinations, tremors, loss of coordination, visual disturbances, lung congestion, heart damage, kidney damage, liver damage, nerve damage, brain damage, convulsions, coma
Long Term: irritation, allergic reactions

Eye

Short Term: irritation
Long Term: irritation

Ingestion

Short Term: nausea, vomiting, stomach pain, difficulty breathing, headache, drowsiness, dizziness, disorientation, hyperactivity, emotional disturbances, hallucinations, tremors, loss of coordination, visual disturbances, lung congestion, heart damage, kidney damage, liver damage, nerve damage, brain damage, convulsions, coma
Long Term: kidney damage

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	>65	---	---
107-21-1	ETHYLENE GLYCOL 203-473-3	<30	Xn	R:22
9005-64-5	POLYOXYETHYLENE (20) SORBITAN MONOLAURATE 500-018-3	<1	---	---
10043-01-3	ALUMINUM SULFATE 233-135-0	<1	Xi	R:36-37-38
7681-55-2	SODIUM IODATE 231-672-5	<1	O Xn Xi	R:8-22-36-37-38
64-19-7	ACETIC ACID 200-580-7	<1	C	R:10-35
517-28-2	HEMATOXYLIN 208-237-3	<1	---	---

* * * 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

Slight fire hazard.

Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water

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 carbon

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.

* * * 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 30 C. Avoid direct sunlight. See original container for storage recommendations. Keep separated from incompatible substances.

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

Exposure Limits

ETHYLENE GLYCOL (107-21-1)

ACGIH:	100 mg/m3 Ceiling (aerosol only)
OSHA:	50 ppm Ceiling; 125 mg/m3 Ceiling
EEC:	20 ppm TWA; 52 mg/m3 TWA 40 ppm STEL; 104 mg/m3 STEL Possibility of significant uptake through the skin
Austria:	20 ppm STEL (8 X 5 min); 52 mg/m3 STEL (8 X 5 min) 10 ppm MAK; 26 mg/m3 MAK skin notation
Belgium:	Skin
Denmark:	10 ppm TWA; 26 mg/m3 TWA; 10 mg/m3 TWA (vapor) Potential for cutaneous absorption
Finland:	40 ppm STEL; 100 mg/m3 STEL 20 ppm TWA; 50 mg/m3 TWA Potential for cutaneous absorption
France:	40 ppm VLCT (indicative limit, vapor); 104 mg/m3 VLCT (indicative limit, vapor) 20 ppm VME (indicative limit, vapor); 52 mg/m3 VME (indicative limit, vapor) Risk of cutaneous absorption
Germany:	10 ppm TWA (exposure factor 2); 26 mg/m3 TWA (exposure factor 2) skin notation
Germany (DFG):	10 ppm MAK; 26 mg/m3 MAK 20 ppm Peak; 52 mg/m3 Peak skin notation
Greece:	50 ppm STEL (vapor); 125 mg/m3 STEL (vapor) 50 ppm TWA (vapor); 125 mg/m3 TWA (vapor)
Ireland:	40 ppm STEL (vapour); 104 mg/m3 STEL (vapour) 10 mg/m3 TWA (particulate); 20 ppm TWA (vapour); 52 mg/m3 TWA (vapour) Potential for cutaneous absorption
Italy:	20 ppm TWA; 52 mg/m3 TWA skin - potential for cutaneous absorption 40 ppm STEL; 104 mg/m3 STEL
Netherlands:	104 mg/m3 STEL 52 mg/m3 TWA (fume); 10 mg/m3 TWA (droplets) skin notation
Portugal:	100 mg/m3 Ceiling (aerosol only)
Spain:	40 ppm VLA-EC; 104 mg/m3 VLA-EC 20 ppm VLA-ED (indicative limit value); 52 mg/m3 VLA-ED (indicative limit value) skin - potential for cutaneous exposure
Sweden:	10 ppm LLV (aerosol and vapor); 25 mg/m3 LLV (aerosol and vapor) 20 ppm STV; 50 mg/m3 STV Skin notation
United Kingdom:	40 ppm STEL (vapour); 104 mg/m3 STEL (vapour); 30 mg/m3 STEL (calculated, particulate) 20 ppm TWA (vapour); 52 mg/m3 TWA (vapour); 10 mg/m3 TWA (particulate) Potential for cutaneous absorption

ACETIC ACID (64-19-7)

ACGIH:	10 ppm TWA 15 ppm STEL
NIOSH:	10 ppm TWA; 25 mg/m3 TWA 15 ppm STEL; 37 mg/m3 STEL 50 ppm IDLH
OSHA:	10 ppm TWA; 25 mg/m3 TWA 10 ppm TWA; 25 mg/m3 TWA
EEC:	10 ppm TWA; 25 mg/m3 TWA
Austria:	20 ppm STEL (8 X 5 min); 50 mg/m3 STEL (8 X 5 min) 10 ppm MAK; 25 mg/m3 MAK
Belgium:	15 ppm STEL; 38 mg/m3 STEL

	10 ppm TWA; 25 mg/m3 TWA
Denmark:	10 ppm TWA; 25 mg/m3 TWA
Finland:	10 ppm STEL; 25 mg/m3 STEL
	5 ppm TWA; 13 mg/m3 TWA
France:	10 ppm VLCT; 25 mg/m3 VLCT
Germany:	10 ppm TWA (exposure factor 2); 25 mg/m3 TWA (exposure factor 2)
Germany (DFG):	10 ppm MAK; 25 mg/m3 MAK
	20 ppm Peak; 50 mg/m3 Peak
Greece:	15 ppm STEL; 37 mg/m3 STEL
	10 ppm TWA; 25 mg/m3 TWA
Ireland:	15 ppm STEL; 37 mg/m3 STEL
	10 ppm TWA; 25 mg/m3 TWA
Japan	10 ppm OEL; 25 mg/m3 OEL
Portugal:	10 ppm TWA
	15 ppm STEL
Spain:	15 ppm VLA-EC; 37 mg/m3 VLA-EC
	10 ppm VLA-ED; 25 mg/m3 VLA-ED
Sweden:	5 ppm LLV; 13 mg/m3 LLV
	10 ppm STV; 25 mg/m3 STV

SODIUM IODATE (7681-55-2)

Germany: Group 2

ALUMINUM SULFATE (10043-01-3)

Finland: 1 mg/m3 TWA (as Al)

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

Respiratory Protection

No respirator is required under normal conditions of use.

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

Physical State:	Liquid	**Appearance:**	Red or purple liquid
Color:	red or purple	**Physical Form:**	liquid
Odor:	faint odor, vinegar odor	**Odor Threshold:**	Not available
pH:	2.6	**Melting/Freezing Point:**	Not available
Boiling Point:	Not available	**Decomposition:**	Not available
Flash Point:	>200 °F CC	**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

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

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Materials to Avoid

acids, alkalis, oxidizing materials

Decomposition Products

Thermal decomposition or combustion products: oxides of carbon

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:

ETHYLENE GLYCOL (107-21-1)

Oral LD50 Rat 4000 mg/kg; Dermal LD50 Rabbit 9530 µL/kg

ACETIC ACID (64-19-7)

Inhalation LC50 Rat 11.4 mg/L 4 h; Oral LD50 Rat 3310 mg/kg; Dermal LD50 Rabbit 1060 mg/kg

SODIUM IODATE (7681-55-2)

Oral LD50 Mouse 505 mg/kg

POLYOXYETHYLENE (20) SORBITAN MONOLAURATE (9005-64-5)

Oral LD50 Rat 36700 µL/kg

ALUMINUM SULFATE (10043-01-3)

Oral LD50 Rat 1930 mg/kg

RTECS Acute Toxicity (selected)

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

ETHYLENE GLYCOL (107-21-1)
Oral: 4700 mg/kg Oral Rat LD50
Skin: 9530 uL/kg Skin Rabbit LD50

ACETIC ACID (64-19-7)
Inhalation: 11000 mg/m3/4 hour Inhalation Rat LC50
Oral: 3310 mg/kg Oral Rat LD50
Skin: 1060 mg/kg Skin Rabbit LD50; 1060 uL/kg Skin Rabbit LD50

SODIUM IODATE (7681-55-2)
Oral: 505 mg/kg Oral Mouse LD50

POLYOXYETHYLENE (20) SORBITAN MONOLAURATE (9005-64-5)
Oral: 36700 uL/kg Oral Rat LD50

ALUMINUM SULFATE (10043-01-3)
Oral: 6207 mg/kg Oral Mouse LD50

Acute Toxicity Level

ETHYLENE GLYCOL (107-21-1)
Moderately Toxic: ingestion
Slightly Toxic: dermal absorption

ACETIC ACID (64-19-7)
Toxic: inhalation
Moderately Toxic: dermal absorption,ingestion

SODIUM IODATE (7681-55-2)
Moderately Toxic: ingestion

POLYOXYETHYLENE (20) SORBITAN MONOLAURATE (9005-64-5)
Non Toxic: ingestion

ALUMINUM SULFATE (10043-01-3)
Slightly Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

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

ETHYLENE GLYCOL (107-21-1)
0.012 ppm/3 day(s) Eyes Rabbit; 500 mg/24 hour Eyes Rabbit mild; 100 mg/1 hour Eyes Rabbit mild; 1440 mg/6 hour Eyes Rabbit moderate; 555 mg/open Skin Rabbit mild; 0.012 percent Eyes Rat

ACETIC ACID (64-19-7)
50 mg/24 hour Skin Human mild; 5 mg/30 second(s) Eyes Rabbit mild; 50 mg/24 hour Skin Rabbit mild; 525 mg/open Skin Rabbit severe

POLYOXYETHYLENE (20) SORBITAN MONOLAURATE (9005-64-5)
15 mg/3 day(s) intermittent Skin Human mild

ALUMINUM SULFATE (10043-01-3)
10 mg/24 hour Eyes Rabbit severe

Local Effects

ETHYLENE GLYCOL (107-21-1)
Irritant: inhalation,skin,eye

ACETIC ACID (64-19-7)
Corrosive: inhalation,skin,eye,ingestion

SODIUM IODATE (7681-55-2)
Irritant: inhalation,skin,eye

ALUMINUM SULFATE (10043-01-3)
Irritant: inhalation,skin,eye

Target Organs

ETHYLENE GLYCOL (107-21-1)
nervous system,kidneys

Carcinogenicity
Component Carcinogenicity
ETHYLENE GLYCOL (107-21-1)
ACGIH: A4 - Not Classifiable as a Human Carcinogen
Portugal: A4 - Not Classifiable as a Human Carcinogen
ACETIC ACID (64-19-7)
Denmark: Present
Mutagenic
No information 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 information 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 information 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
eye disorders, respiratory disorders, skin disorders and allergies

* * * Section 12 - Ecological Information* * *

Component Analysis - Aquatic Toxicity
ETHYLENE GLYCOL (107-21-1)
Fish: 96 Hr LC50 Oncorhynchus mykiss: 41000 mg/L; 96 Hr LC50 Oncorhynchus mykiss: 14 - 18 mL/L [static]; 96 Hr LC50 Lepomis macrochirus: 27540 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 40761 mg/L [static]; 96 Hr LC50 Pimephales promelas: 40000 - 60000 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 16000 mg/L [static]
Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: 6500 - 13000 mg/L
Invertebrate: 48 Hr EC50 Daphnia magna: 46300 mg/L
ACETIC ACID (64-19-7)
Fish: 96 Hr LC50 Pimephales promelas: 79 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 75 mg/L [static]
Invertebrate: 24 Hr EC50 Daphnia magna: 47 mg/L; 48 Hr EC50 Daphnia magna: 65 mg/L [Static]
ALUMINUM SULFATE (10043-01-3)
Fish: 96 Hr LC50 Carassius auratus: 100 mg/L; 96 Hr LC50 Gambusia affinis: 37 mg/L [static]
Invertebrate: 15 Min EC50 Daphnia magna: 136 mg/L
Mobility
No information available for the mixture.
Persistence & Degradation
No information available for the mixture.
Bioaccumulative Potential
No information 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.

* * * 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.

ETHYLENE GLYCOL (107-21-1)

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ; 2270 kg final RQ

ACETIC ACID (64-19-7)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

ALUMINUM SULFATE (10043-01-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

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
ETHYLENE GLYCOL	107-21-1	Yes	Yes	Yes	Yes	Yes	Yes
ACETIC ACID	64-19-7	Yes	Yes	Yes	Yes	Yes	Yes
ALUMINUM SULFATE	10043-01-3	Yes	Yes	No	Yes	Yes	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:

ETHYLENE GLYCOL (107-21-1)

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

ETHYLENE GLYCOL (107-21-1)

ID Number 105, hazard class 1 - low hazard to waters (footnote 11)

ACETIC ACID (64-19-7)

ID Number 93, hazard class 1 - low hazard to waters (>25%)

POLYOXYETHYLENE (20) SORBITAN MONOLAURATE (9005-64-5)
ID Number 3692, hazard class 1 - low hazard to waters
ALUMINUM SULFATE (10043-01-3)
ID Number 486, hazard class 1 - low hazard to waters (footnote 8)

EU Marking and Labelling

Symbols

Xn Harmful
Xi Irritant

Risk Phrases

R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases

S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S60 This material and its container must be disposed of as hazardous waste.

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

The following components are 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.

ACETIC ACID (64-19-7)
Flammable substance

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

R8 Contact with combustible material may cause fire.
R10 Flammable.
R22 Harmful if swallowed.
R35 Causes severe burns.
R36 Irritating to eyes.
R37 Irritating to respiratory system.
R38 Irritating to skin.

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: 12/1/2010

End of Sheet 00231362