a member of the Roche Group

Material Safety Data Sheet

Material Name: Quantum Dot Blocking Buffer **MSDS ID: VEN-081**

* * * 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: Quantum Dot Blocking Buffer

Product Number(s)

854-4553, 06538053001

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; R:36/37/38-43

Risks

Irritating to eyes, respiratory system and skin.
May cause sensitization by skin contact.

EMERGENCY OVERVIEW

Physical Form: liquid
Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation
Long Term: irritation

Skin

Short Term: irritation, allergic reactions
Long Term: irritation

Eye

Short Term: irritation
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	---	---
1310-73-2	Sodium hydroxide 215-185-5	1-5	C	R:35

7647-14-5	Sodium chloride 231-598-3	<1	Xi	R:36
55965-84-9	Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone -	<0.01	T N	R:23/24/25-34-43-50/53

* * * 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

Slight fire hazard.

Extinguishing Media

regular dry chemical, carbon dioxide, water, regular foam

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

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, oxides of potassium, oxides of sodium

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. Keep separated from incompatible substances.

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

Exposure Limits

Sodium hydroxide (1310-73-2)

ACGIH:	2 mg/m3 Ceiling
NIOSH:	2 mg/m3 Ceiling
	10 mg/m3 IDLH
OSHA:	2 mg/m3 Ceiling
	2 mg/m3 TWA
Austria:	4 mg/m3 STEL (inhalable fraction, 8 X 5 min)
	2 mg/m3 MAK (inhalable fraction)
Denmark:	2 mg/m3 Ceiling
Finland:	2 mg/m3 STEL
	2 mg/m3 Ceiling
France:	2 mg/m3 VME
Greece:	2 mg/m3 STEL
	2 mg/m3 TWA
Ireland:	2 mg/m3 STEL
Japan	2 mg/m3 Ceiling
Portugal:	2 mg/m3 Ceiling
Spain:	2 mg/m3 VLA-EC
Sweden:	1 mg/m3 LLV (inhalable dust)
	2 mg/m3 CLV (inhalable dust)
United Kingdom:	2 mg/m3 STEL

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.

Respiratory Protection

No respirator is required under normal conditions of use.

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

Physical State:	Liquid	**Appearance:**	liquid
Physical Form:	liquid	**Odor:**	Not available
Odor Threshold:	Not available	**pH:**	7.2-7.4
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:**	1.0 g/mL
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, combustible materials, halocarbons, halogens, metal salts, metals, oxidizing materials, peroxides

Decomposition Products

Thermal decomposition or combustion products: oxides of carbon, oxides of potassium, 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:

Sodium hydroxide (1310-73-2)

Dermal LD50 Rabbit 1350 mg/kg

Sodium chloride (7647-14-5)

Inhalation LC50 Rat >42 g/m3 1 h; Oral LD50 Rat 3 g/kg; Dermal LD50 Rabbit >10 g/kg

Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone (55965-84-9)

Oral LD50 Rat 53 mg/kg

RTECS Acute Toxicity (selected)

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

Sodium chloride (7647-14-5)

Oral: 3000 mg/kg Oral Rat LD50

Acute Toxicity Level

Sodium hydroxide (1310-73-2)

Toxic: ingestion
Moderately Toxic: dermal absorption

Sodium chloride (7647-14-5)

Moderately Toxic: ingestion

Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone (55965-84-9)

Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

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

Sodium hydroxide (1310-73-2)

2 percent Skin Human mild; 1 percent Eyes Monkey severe; 400 ug Eyes Rabbit mild; 1 percent Eyes Rabbit severe; 50 ug/24 hour Eyes Rabbit severe; 1 mg/24 hour Eyes Rabbit severe; 1 mg/30 second(s) Eyes Rabbit severe; 500 mg/24 hour Skin Rabbit severe

Sodium chloride (7647-14-5)

10 mg Eyes Rabbit moderate; 100 mg/24 hour Eyes Rabbit moderate; 500 mg/24 hour Skin Rabbit mild

Local Effects

Sodium hydroxide (1310-73-2)

Corrosive: inhalation,skin,eye,ingestion

Sodium chloride (7647-14-5)

Irritant: eye

Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone (55965-84-9)

Corrosive: inhalation,skin,eye,ingestion

Target Organs

Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone (55965-84-9)

immune system (sensitizer)

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
eye disorders, skin disorders and allergies

* * * Section 12 - Ecological Information* * *

Component Analysis - Aquatic Toxicity
Sodium hydroxide (1310-73-2)
Fish: 96 Hr LC50 Oncorhynchus mykiss: 45.4 mg/L [static]
Sodium chloride (7647-14-5)
Fish: 96 Hr LC50 Lepomis macrochirus: 5560-6080 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 12946 mg/L [static]; 96 Hr LC50 Pimephales promelas: 6020-7070 mg/L [static]; 96 Hr LC50 Pimephales promelas: 7050 mg/L [semi-static]; 96 Hr LC50 Pimephales promelas: 6420-6700 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 4747-7824 mg/L [flow-through]
Invertebrate: 48 Hr EC50 Daphnia magna: 1000 mg/L; 48 Hr EC50 Daphnia magna: 340.7 - 469.2 mg/L [Static]

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.

* * * 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.
Sodium hydroxide (1310-73-2)
CERCLA: 1000 lb final RQ; 454 kg final RQ
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
Sodium hydroxide	1310-73-2	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:
Sodium hydroxide (1310-73-2)
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
Sodium hydroxide (1310-73-2)
ID Number 142, hazard class 1 - low hazard to waters (footnote 8)
Sodium chloride (7647-14-5)
ID Number 270, hazard class 1 - low hazard to waters
Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone (55965-84-9)
ID Number 2959, hazard class 3 - severe hazard to waters
EU Marking and Labelling
Symbols
Xi Irritant
Risk Phrases
R36/37/38 Irritating to eyes, respiratory system and skin.

R43 May cause sensitization by skin contact.

Safety Phrases

S24 Avoid contact with skin.
S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 Wear suitable gloves.

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

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

Sodium hydroxide (1310-73-2)

Deleterious, 5%; Deleterious

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

R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R34 Causes burns.
R35 Causes severe burns.
R36 Irritating to eyes.

R43 May cause sensitization by skin contact.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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.

New MSDS: 12/1/2010

End of Sheet VEN-081