a member of the Roche Group

Material Safety Data Sheet

Material Name: Diastase **MSDS ID: 00232190**

* * * 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: Diastase

Product Number(s)

860-004, 1504008, 05279208001, 06037984001

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:36/37/38-22-42

Risks

Harmful if swallowed.
Irritating to eyes, respiratory system and skin.
May cause sensitization by inhalation.

EMERGENCY OVERVIEW

Change in Color: air-sensitive moisture-sensitive
Physical Form: liquid
Odor: odorless
Major Health Hazards: allergic reactions

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, allergic reactions, nausea, headache
Long Term: allergic reactions

Skin

Short Term: irritation, allergic reactions, absorption may occur, nausea, headache, drowsiness, dizziness, loss of coordination
Long Term: irritation, allergic reactions

Eye

Short Term: irritation
Long Term: no information on significant adverse effects

Ingestion

Short Term: vomiting, stomach pain, unconsciousness
Long Term: no information on significant adverse 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)
57-55-6	PROPYLENE GLYCOL 200-338-0	30-60	---	---
Not Available	NON-HAZARDOUS	30-60	---	---
9000-90-2	ALPHA-AMYLASE 232-565-6	1-5	---	R:42
Not Available	HYDROCHLORIC ACID, 1N	1-5	Xn C Xi	R20-35-37
77-86-1	TRIS(HYDROXYMETHYL)AMINOMETHANE 201-064-4	<1	Xi	R:36-37-38
26628-22-8	SODIUM AZIDE 247-852-1	<1	T+ N	R:28-32-50-53
10035-04-8	CALCIUM CHLORIDE, DIHYDRATE 233-140-8	<1	Xi	R:36
7681-57-4	SODIUM METABISULFITE 231-673-0	<1	Xn Xi	R:22-31-41

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Calcium chloride (10043-52-4).

* * * 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

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 chloride, oxides of carbon, oxides of nitrogen, oxides of sulfur

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. Avoid contact with water or moisture. Do not allow material to become dry. Dry residue may explode when heated. See original container for storage recommendations. Keep separated from incompatible substances.

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

Exposure Limits

PROPYLENE GLYCOL (57-55-6)

Ireland: 150 ppm TWA (total vapour and particulates); 470 mg/m3 TWA (total vapour and particulates); 10 mg/m3 TWA (particulate)

United Kingdom: 450 ppm STEL (total particulate and vapour); 1422 mg/m3 STEL (total particulate and vapour); 30 mg/m3 STEL (particulate)
150 ppm TWA (total particulate and vapour); 474 mg/m3 TWA (total particulate and vapour); 10 mg/m3 TWA (particulate)

SODIUM AZIDE (26628-22-8)

ACGIH: 0.29 mg/m3 Ceiling (as NaN3); 0.11 ppm Ceiling (as Hydrazoic acid, vapor)

NIOSH: 0.1 ppm Ceiling (as HN3); 0.3 mg/m3 Ceiling (as NaN3)
Potential for dermal absorption

OSHA: 0.1 ppm Ceiling (as HN3); 0.3 mg/m3 Ceiling (as NaN3)
Prevent or reduce skin absorption

EEC: 0.1 mg/m3 TWA
0.3 mg/m3 STEL
Possibility of significant uptake through the skin

Austria: 0.3 mg/m3 STEL (4 X 15 min)
0.1 mg/m3 MAK
skin notation

Belgium: Skin

Denmark: 0.1 mg/m3 TWA
Potential for cutaneous absorption

Finland: 0.3 mg/m3 STEL
0.1 mg/m3 TWA
Potential for cutaneous absorption

France: 0.3 mg/m3 VLCT (restrictive limit)
0.1 mg/m3 VME (restrictive limit)
Risk of cutaneous absorption

Germany: 0.2 mg/m3 TWA (exposure factor 2)
0.2 mg/m3 MAK (inhalable fraction)
0.4 mg/m3 Peak (inhalable fraction)

Greece: 0.1 ppm STEL; 0.3 mg/m3 STEL
0.1 ppm TWA; 0.3 mg/m3 TWA

Ireland: 0.3 mg/m3 STEL (as NaN3)
0.1 mg/m3 TWA (as NaN3)
Potential for cutaneous absorption

Italy: 0.1 mg/m3 TWA
skin - potential for cutaneous absorption
0.3 mg/m3 STEL

Netherlands: 0.3 mg/m3 STEL
0.1 mg/m3 TWA
skin notation

Portugal: 0.29 mg/m3 Ceiling (as NaN3); 0.11 ppm Ceiling (as Hydrazoic acid, vapor)

Spain: 0.3 mg/m3 VLA-EC
0.1 mg/m3 VLA-ED (indicative limit value)
skin - potential for cutaneous exposure

Sweden: 0.1 mg/m3 LLV
0.3 mg/m3 STV
Skin notation

United Kingdom: 0.3 mg/m3 STEL (as NaN3)
0.1 mg/m3 TWA (as NaN3)
Potential for cutaneous absorption

Hydrogen chloride, anhydrous (7647-01-0)

ACGIH: 2 ppm Ceiling

NIOSH: 5 ppm Ceiling; 7 mg/m3 Ceiling
50 ppm IDLH

OSHA: 5 ppm Ceiling; 7 mg/m3 Ceiling

	5 ppm Ceiling; 7 mg/m3 Ceiling
EEC:	5 ppm TWA; 8 mg/m3 TWA
	10 ppm STEL; 15 mg/m3 STEL
Austria:	10 ppm STEL (8 X 5 min); 15 mg/m3 STEL (8 X 5 min)
	5 ppm MAK; 8 mg/m3 MAK
Belgium:	10 ppm STEL; 15 mg/m3 STEL
	5 ppm TWA; 8 mg/m3 TWA
Denmark:	5 ppm Ceiling; 7 mg/m3 Ceiling
Finland:	5 ppm STEL; 7.6 mg/m3 STEL (including solution)
France:	5 ppm VLCT (restrictive limit); 7.6 mg/m3 VLCT (restrictive limit)
Germany:	2 ppm TWA (exposure factor 2); 3 mg/m3 TWA (exposure factor 2)
	2 ppm MAK; 3.0 mg/m3 MAK
	4 ppm Peak; 6 mg/m3 Peak
Greece:	5 ppm STEL; 7 mg/m3 STEL
	5 ppm TWA; 7 mg/m3 TWA
Ireland:	10 ppm STEL; 15 mg/m3 STEL
	5 ppm TWA; 8 mg/m3 TWA
Italy:	5 ppm TWA; 8 mg/m3 TWA
	10 ppm STEL; 15 mg/m3 STEL
Japan	5 ppm Ceiling; 7.5 mg/m3 Ceiling
Netherlands:	15 mg/m3 STEL
	8 mg/m3 TWA
Portugal:	2 ppm Ceiling
Spain:	10 ppm VLA-EC; 15 mg/m3 VLA-EC
	5 ppm VLA-ED (indicative limit value); 7.6 mg/m3 VLA-ED (indicative limit value)
Sweden:	5 ppm CLV; 8 mg/m3 CLV
United Kingdom:	5 ppm STEL (aerosol mist and gas); 8 mg/m3 STEL (aerosol mist and gas)
	1 ppm TWA (aerosol mist and gas); 2 mg/m3 TWA (aerosol mist and gas)

SODIUM METABISULFITE (7681-57-4)

ACGIH:	5 mg/m3 TWA
NIOSH:	5 mg/m3 TWA
OSHA:	5 mg/m3 TWA
Belgium:	5 mg/m3 TWA
Denmark:	5 mg/m3 TWA
France:	5 mg/m3 VME
Greece:	5 mg/m3 TWA
Ireland:	5 mg/m3 TWA
Portugal:	5 mg/m3 TWA
Spain:	5 mg/m3 VLA-ED
United Kingdom:	15 mg/m3 STEL
	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.

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

Physical State:	Liquid	**Appearance:**	Clear liquid
Change in color:	air-sensitive moisture-sensitive	**Physical Form:**	liquid
Odor:	odorless	**Odor Threshold:**	Not available
pH:	7.29	**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

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

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid contact with water or moisture.

Materials to Avoid

acid anhydrides, acid chlorides, bases, chloroformates, combustible materials, cyanides, oxidizing materials, reducing agents, sulfides

Decomposition Products

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

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:

PROPYLENE GLYCOL (57-55-6)

Oral LD50 Rat 20000 mg/kg; Dermal LD50 Rabbit 20800 mg/kg

ALPHA-AMYLASE (9000-90-2)

Oral LD50 Rat >7500 mg/kg

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

Oral LD50 Rat 5900 mg/kg

SODIUM AZIDE (26628-22-8)

Oral LD50 Rat 27 mg/kg; Dermal LD50 Rat 50 mg/kg; Dermal LD50 Rabbit 20 mg/kg

Hydrogen chloride, anhydrous (7647-01-0)

Inhalation LC50 Rat 3124 ppm 1 h; Oral LD50 Rat 700 mg/kg; Dermal LD50 Rabbit >5010 mg/kg

CALCIUM CHLORIDE, DIHYDRATE (10035-04-8)

Oral LD50 Rat 1000 mg/kg; Dermal LD50 Rat 2630 mg/kg

SODIUM METABISULFITE (7681-57-4)

Oral LD50 Rat 1131 mg/kg; Dermal LD50 Rat >2 g/kg

RTECS Acute Toxicity (selected)

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

PROPYLENE GLYCOL (57-55-6)

Oral: 20 gm/kg Oral Rat LD50

Skin: 20800 mg/kg Skin Rabbit LD50; 20800 mg/kg Skin Rabbit LD50

ALPHA-AMYLASE (9000-90-2)

Oral: >7500 mg/kg Oral Rat LD50

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

Oral: >3000 mg/kg Oral Rat LD50

SODIUM AZIDE (26628-22-8)

Inhalation: 37 mg/m3 Inhalation Rat LC50

Oral: 27 mg/kg Oral Rat LD50

Skin: 20 mg/kg Skin Rabbit LD50

Acute Toxicity Level

PROPYLENE GLYCOL (57-55-6)

Non Toxic: dermal absorption, ingestion.

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

Slightly Toxic: ingestion.

SODIUM AZIDE (26628-22-8)

Highly Toxic: inhalation, dermal absorption, ingestion.

Hydrogen chloride, anhydrous (7647-01-0)

Toxic: inhalation.

Moderately Toxic: ingestion.

CALCIUM CHLORIDE, DIHYDRATE (10035-04-8)

Moderately Toxic: ingestion.

SODIUM METABISULFITE (7681-57-4)

Moderately Toxic: ingestion.

Irritation/Corrosivity

RTECS Irritation

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

PROPYLENE GLYCOL (57-55-6)

30 percent Skin Child moderate; 500 mg/7 day(s) Skin Human mild; 104 mg/3 day(s) intermittent Skin Human moderate; 10 percent Skin Man; 500 mg/24 hour Eyes Rabbit mild; 100 mg Eyes Rabbit mild; 30 percent/open Skin Woman mild

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

25 percent Skin Rabbit moderate; 500 mg Skin Rabbit severe; 100 mg Skin Rat

Local Effects

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

Irritant: inhalation, skin, eye.

SODIUM AZIDE (26628-22-8)

Irritant: inhalation, skin, eye.

Hydrogen chloride, anhydrous (7647-01-0)

Corrosive: inhalation, skin, eye, ingestion.

CALCIUM CHLORIDE, DIHYDRATE (10035-04-8)

Irritant: inhalation, skin, eye.

SODIUM METABISULFITE (7681-57-4)

Irritant: inhalation, skin, eye.

Target Organs

ALPHA-AMYLASE (9000-90-2)

immune system (sensitizer).

SODIUM AZIDE (26628-22-8)

blood.

SODIUM METABISULFITE (7681-57-4)

immune system (sensitizer).

Carcinogenicity

Component Carcinogenicity

SODIUM AZIDE (26628-22-8)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Portugal: A4 - Not Classifiable as a Human Carcinogen

Hydrogen chloride, anhydrous (7647-01-0)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 54 [1992] (Group 3 (not classifiable))

Portugal: A4 - Not Classifiable as a Human Carcinogen

SODIUM METABISULFITE (7681-57-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 54 [1992] (Group 3 (not classifiable))

Portugal: A4 - Not Classifiable as a Human Carcinogen

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

kidney disorders, skin disorders and allergies

Additional Data

Alcohol may enhance the toxic effects. Interactions with drugs may occur.

* * * Section 12 - Ecological Information * * *

Component Analysis - Aquatic Toxicity

PROPYLENE GLYCOL (57-55-6)

Fish: 96 Hr LC50 Oncorhynchus mykiss: 51600 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 41 - 47 mL/L [static]; 96 Hr LC50 Pimephales promelas: 51400 mg/L [static]; 96 Hr LC50 Pimephales promelas: 710 mg/L

Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: 19000 mg/L

Invertebrate: 24 Hr EC50 Daphnia magna: >10000 mg/L; 48 Hr EC50 Daphnia magna: >1000 mg/L [Static]

SODIUM AZIDE (26628-22-8)

Fish: 96 Hr LC50 Oncorhynchus mykiss: 0.8 mg/L; 96 Hr LC50 Lepomis macrochirus: 0.7 mg/L; 96 Hr LC50 Pimephales promelas: 5.46 mg/L [flow-through]

Hydrogen chloride, anhydrous (7647-01-0)

Fish: 96 Hr LC50 Gambusia affinis: 282 mg/L [static]

CALCIUM CHLORIDE, DIHYDRATE (10035-04-8)

Fish: 96 Hr LC50 Lepomis macrochirus: 10650 mg/L [static]

Invertebrate: 48 Hr EC50 Daphnia magna: 52 mg/L

SODIUM METABISULFITE (7681-57-4)

Fish: 96 Hr LC50 Lepomis macrochirus: 32 mg/L [static]

Algae: 72 Hr EC50 Desmodesmus subspicatus: 48 mg/L; 96 Hr EC50 Desmodesmus subspicatus: 40 mg/L

Invertebrate: 24 Hr EC50 Daphnia magna Straus: 89 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

SODIUM AZIDE (26628-22-8)

RCRA: waste_number P105

* * * 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 AZIDE (26628-22-8)

SARA 302/304: 500 lb TPQ (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)
1000 lb EPCRA RQ

SARA 313: 1.0 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

Hydrogen chloride, anhydrous (7647-01-0)

SARA 302/304: 500 lb TPQ (gas only)
5000 lb EPCRA RQ (gas only)

SARA 313: 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

OSHA (safety): 5000 lb TQ; 5000 lb TQ (anhydrous)

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
PROPYLENE GLYCOL	57-55-6	No	No	Yes	Yes	Yes	Yes
SODIUM AZIDE	26628-22-8	Yes	Yes	Yes	Yes	Yes	Yes
Hydrogen chloride, anhydrous	7647-01-0	Yes	Yes	Yes	Yes	Yes	Yes
SODIUM METABISULFITE	7681-57-4	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:

PROPYLENE GLYCOL (57-55-6)

1 %

WHMIS Classification

D2A.

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

PROPYLENE GLYCOL (57-55-6)

Number 280, hazard class 1 - low hazard to waters

ALPHA-AMYLASE (9000-90-2)

Number 3960, hazard class 1 - low hazard to waters

TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)

Number 4650, hazard class 2 - hazard to waters

SODIUM AZIDE (26628-22-8)

Number 636, hazard class 2 - hazard to waters

Hydrogen chloride, anhydrous (7647-01-0)

Number 238, hazard class 1 - low hazard to waters (footnote 8)

CALCIUM CHLORIDE, DIHYDRATE (10035-04-8)

Number 220, hazard class 1 - low hazard to waters

SODIUM METABISULFITE (7681-57-4)

Number 1169, hazard class 1 - low hazard to waters

EU Marking and Labelling

Symbols

Xi Irritant

Xn Harmful

Risk Phrases

R36/37/38 Irritating to eyes, respiratory system and skin.

R22 Harmful if swallowed.

R42 May cause sensitization by inhalation.

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.

S36/37 Wear suitable protective clothing and gloves.

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.

SODIUM AZIDE (26628-22-8)

11

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 AZIDE (26628-22-8)

Poisonous, 0.1

Hydrogen chloride, anhydrous (7647-01-0)

Deleterious, 10; Deleterious; Deleterious

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.

SODIUM AZIDE (26628-22-8)

Explosive 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

R20 Harmful by inhalation.
R22 Harmful if swallowed.
R23 Toxic by inhalation.
R28 Very toxic if swallowed.
R31 Contact with acids liberates toxic gas.
R32 Contact with acids liberates very toxic gas.
R35 Causes severe burns.
R36 Irritating to eyes.
R37 Irritating to respiratory system.
R38 Irritating to skin.
R41 Risk of serious damage to eyes.
R42 May cause sensitization by inhalation.
R50 Very toxic to aquatic organisms.
R53 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.

MSDS Update: 10/13/2010

End of Sheet 00232190