



a member of the Roche Group

Material Safety Data Sheet

Material Name: RiboClear™ Reagent

MSDS ID: 00231486

*** 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: RiboClear™ Reagent

Product Number(s)

760-4125, 05268397001

Product Use

Research use only

*** Section 2 - Hazards Identification***

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0

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

Preparation

R:34

Risks

Causes burns.

EMERGENCY OVERVIEW

Color: colorless to yellow

Physical Form: liquid

Odor: hydrogen chloride odor

Major Health Hazards: respiratory tract burns, skin burns, eye burns, mucous membrane burns

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: burns

Long Term: burns

Skin

Short Term: burns

Long Term: burns

Eye

Short Term: burns

Long Term: burns

Ingestion

Short Term: burns

Long Term: burns

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	---	---
7647-01-0	HYDROGEN CHLORIDE, ANHYDROUS 231-595-7	0.5-1.5	C	R:34-37

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*** 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 skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

Note to Physicians

For inhalation, consider oxygen.
Avoid gastric lavage or emesis.

*** Section 5 - Fire-Fighting Measures***

See Section 9 for Flammability Properties

Flammable Properties

Negligible fire hazard.

Extinguishing Media

carbon dioxide, regular dry chemical, dry sand, alcohol resistant foam

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material. Avoid inhalation of material or combustion by-products.

Sensitivity to Mechanical Impact

Not sensitive

Sensitivity to Static Discharge

Not sensitive

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

Occupational Spill/Release

Do not touch spilled material. Stop leak if possible without personal risk. 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 15 C and 30 C. See original container for storage recommendations. Keep separated from incompatible substances.

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

Exposure Limits

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)
Germany (DFG):	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)

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.

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

Physical State:	Liquid	Appearance:	Clear, colorless to yellow liquid
Color:	colorless to yellow	Physical Form:	liquid
Odor:	hydrogen chloride odor	Odor Threshold:	Not available
pH:	0.468	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

None reported.

Materials to Avoid

alkali metals, aluminum, amines, bases, copper, copper alloys, oxidizing materials

Decomposition Products

hydrogen chloride

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:

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

RTECS Acute Toxicity (selected)

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

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

Inhalation: 8300 mg/m³/30 minute(s) Inhalation Rat LC50; 3124 ppm/1 hour Inhalation Rat LC50; 3700 ppm/30 minute(s) Inhalation Rat LC50; 60938 mg/m³/5 minute(s) Inhalation Rat LC50; 7004 mg/m³/30 minute(s) Inhalation Rat LC50; 45000 mg/m³/5 minute(s) Inhalation Rat LC50

Acute Toxicity Level

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

Toxic: inhalation

Moderately Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

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

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

4 percent Skin Human mild; 5 mg/30 second(s) Eyes Rabbit mild

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Local Effects

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

Corrosive: inhalation, skin, eye, ingestion

Carcinogenicity

Component Carcinogenicity

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

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

None known.

*** Section 12 - Ecological Information***

Component Analysis - Aquatic Toxicity

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

Fish: 96 Hr LC50 Gambusia affinis: 282 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. Subject to disposal regulations: U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D002.

Component Waste Numbers

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

*** Section 14 - Transport Information***

US DOT Information

Shipping Name: Hydrochloric acid, Solution

UN/NA #: UN1789 **Hazard Class:** 8 **Packing Group:** III

Required Label(s): 8

TDG Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 **Hazard Class:** 8 **Packing Group:** III

Required Label(s): 8

ADR Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 **Hazard Class:** 8 **Packing Group:** III

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Required Label(s): 8

RID Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 Hazard Class: 8 Packing Group: III

Required Label(s): 8

IATA Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 Hazard Class: 8 Packing Group: III

Required Label(s): 8

ICAO Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 Hazard Class: 8 Packing Group: III

Required Label(s): 8

IMDG Information

Shipping Name: Hydrochloric acid, Solution

UN #: UN1789 Hazard Class: 8 Packing Group: III

Required Label(s): 8

*** 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.

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: 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
HYDROGEN CHLORIDE, ANHYDROUS	7647-01-0	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:

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

1 %

WHMIS Classification

E.

European Regulations

This preparation has been classified for the European Union according to Annex VI Directives 67/548/EEC and 99/45/EC.

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Germany Water Classification

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

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

EU Marking and Labelling

Symbols

C Corrosive

Risk Phrases

R34 Causes burns.

Safety Phrases

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

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

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.

HYDROGEN CHLORIDE, ANHYDROUS (7647-01-0)

Deleterious, 10%; Deleterious; 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.

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*** 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

R34 Causes burns.

R37 Irritating to respiratory system.

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 00231486