



a member of the Roche Group

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

*** 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: RiboHybe™ Reagent

Product Number(s)

760-104, 05266254001

Product Use

Research use only

*** Section 2 - Hazards Identification***

NFPA Ratings: Health: 2 Fire: 0 Reactivity: 0

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

Preparation

Repr.Cat.2; R:61

Risks

May cause harm to the unborn child.

EMERGENCY OVERVIEW

Color: colorless to amber

Physical Form: liquid

Odor: odorless

Major Health Hazards: harmful if inhaled, respiratory tract irritation, skin irritation, eye irritation, reproductive effects

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, cough, sore throat, nausea, vomiting, stomach pain, headache, dizziness, lung congestion, unconsciousness

Long Term: irritation, nausea, headache, kidney damage, liver damage, unconsciousness

Skin

Short Term: irritation

Long Term: irritation, reproductive effects

Eye

Short Term: irritation, eye damage

Long Term: irritation, eye damage

Ingestion

Short Term: gastrointestinal irritation, fever, nausea, vomiting, diarrhea, stomach pain, loss of appetite, weight loss, headache, dizziness, disorientation, lung congestion, effects on the brain, convulsions, coma, reproductive effects

Long Term: changes in blood pressure, kidney damage, liver damage, reproductive effects

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

*** Section 3 - Composition/Information on Ingredients***

CAS #	Component / EU Number	Percent	Symbol(s)	Risk Phrase(s)
75-12-7	FORMAMIDE 200-842-0	<80	T	R:61
7647-14-5	SODIUM CHLORIDE 231-598-3	<1.73	Xi	R:36
7558-79-4	SODIUM PHOSPHATE, DIBASIC 231-448-7	<1	---	---
60-00-4	ETHYLENEDIAMINETETRAACETIC ACID 200-449-4	<1	Xi	R:36

*** 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 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 15 C and 30 C. See original container for storage recommendations. Keep separated from incompatible substances.

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

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

Exposure Limits

FORMAMIDE (75-12-7)

ACGIH:	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route
NIOSH:	10 ppm TWA; 15 mg/m ³ TWA Potential for dermal absorption
OSHA:	20 ppm TWA; 30 mg/m ³ TWA 30 ppm STEL; 45 mg/m ³ STEL
Austria:	18 ppm STEL (4 X 15 min); 32 mg/m ³ STEL (4 X 15 min) 9 ppm MAK; 16 mg/m ³ MAK skin notation
Belgium:	10 ppm TWA; 18 mg/m ³ TWA Skin
Denmark:	10 ppm TWA; 18 mg/m ³ TWA Potential for cutaneous absorption
Finland:	20 ppm STEL; 37 mg/m ³ STEL 10 ppm TWA; 19 mg/m ³ TWA Potential for cutaneous absorption
France:	20 ppm VME; 30 mg/m ³ VME
Germany (DFG):	skin notation
Greece:	30 ppm STEL; 45 mg/m ³ STEL 20 ppm TWA; 30 mg/m ³ TWA skin - potential for cutaneous absorption
Ireland:	30 ppm STEL; 45 mg/m ³ STEL 20 ppm TWA; 30 mg/m ³ TWA
Portugal:	10 ppm TWA skin - potential for cutaneous exposure
Spain:	10 ppm VLA-ED; 19 mg/m ³ VLA-ED skin - potential for cutaneous exposure
Sweden:	10 ppm LLV; 20 mg/m ³ LLV 15 ppm STV; 30 mg/m ³ STV Skin notation
United Kingdom:	30 ppm STEL; 56 mg/m ³ STEL 20 ppm TWA; 37 mg/m ³ 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

nitrile

Respiratory Protection

No respirator is required under normal conditions of use.

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

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

Physical State:	Liquid	Appearance:	Colorless to amber liquid
Color:	colorless to amber	Physical Form:	liquid
Odor:	odorless	Odor Threshold:	Not available
pH:	7.827	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

iodine, oxidizing materials, pyridines, sulfur trioxide

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:

FORMAMIDE (75-12-7)

Inhalation LC50 Rat >3900 ppm 6 h; Oral LD50 Rat >5000 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

SODIUM PHOSPHATE, DIBASIC (7558-79-4)

Oral LD50 Rat 17 g/kg

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

Oral LD50 Rat 1700 mg/kg

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

RTECS Acute Toxicity (selected)

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

FORMAMIDE (75-12-7)

Inhalation: >3900 ppm/6 hour Inhalation Rat LC50

Oral: 5570 mg/kg Oral Rat LD50; 4000 mg/kg Oral Rat LD50; 5577 mg/kg Oral Rat LD50

Skin: 17 gm/kg Skin Rabbit LD50

SODIUM CHLORIDE (7647-14-5)

Oral: 3000 mg/kg Oral Rat LD50

SODIUM PHOSPHATE, DIBASIC (7558-79-4)

Oral: 17000 mg/kg Oral Rat LD50

Acute Toxicity Level

FORMAMIDE (75-12-7)

Toxic: inhalation

Moderately Toxic: ingestion

Slightly Toxic: dermal absorption

SODIUM CHLORIDE (7647-14-5)

Moderately Toxic: ingestion

SODIUM PHOSPHATE, DIBASIC (7558-79-4)

Non Toxic: ingestion

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

Moderately Toxic: ingestion

Irritation/Corrosivity

RTECS Irritation

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

FORMAMIDE (75-12-7)

100 mg Eyes 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

SODIUM PHOSPHATE, DIBASIC (7558-79-4)

500 mg/24 hour Eyes Rabbit mild; 500 mg/24 hour Skin Rabbit mild

Local Effects

FORMAMIDE (75-12-7)

Irritant: inhalation, skin, eye

SODIUM CHLORIDE (7647-14-5)

Irritant: eye

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

Irritant: inhalation, skin, eye

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

Available data characterizes this substance as a reproductive hazard.

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.

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

*** Section 12 - Ecological Information***

Component Analysis - Aquatic Toxicity

FORMAMIDE (75-12-7)

Fish: 96 Hr LC50 Brachydanio rerio: 9135 mg/L [static]; 96 Hr LC50 Leuciscus idus: 4600-9300 mg/L [static]

Algae: 72 Hr EC50 Desmodesmus subspicatus: >500 mg/L; 96 Hr EC50 Desmodesmus subspicatus: >500 mg/L

Invertebrate: 48 Hr EC50 Daphnia magna: >500 mg/L

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]

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

Fish: 96 Hr LC50 Lepomis macrochirus: 34-62 mg/L [static]; 96 Hr LC50 Pimephales promelas: 44.2-76.5 mg/L [static]

Algae: 72 Hr EC50 Desmodesmus subspicatus: 1.01 mg/L

Invertebrate: 48 Hr EC50 Daphnia magna: 113 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.

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

*** 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 PHOSPHATE, DIBASIC (7558-79-4)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

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
FORMAMIDE	75-12-7	Yes	Yes	Yes	Yes	Yes	Yes
SODIUM PHOSPHATE, DIBASIC	7558-79-4	Yes	Yes	No	Yes	Yes	No
ETHYLENEDIAMINETETRAACETIC ACID	60-00-4	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:

FORMAMIDE (75-12-7)

0.1 %

WHMIS Classification

D2A, 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

FORMAMIDE (75-12-7)

ID Number 1509, hazard class 1 - low hazard to waters

SODIUM CHLORIDE (7647-14-5)

ID Number 270, hazard class 1 - low hazard to waters

SODIUM PHOSPHATE, DIBASIC (7558-79-4)

ID Number 330, hazard class 1 - low hazard to waters

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

ID Number 104, hazard class 2 - hazard to waters

EU Marking and Labelling

Symbols

T Toxic

Risk Phrases

R61 May cause harm to the unborn child.

Safety Phrases

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

S53 Avoid exposure - obtain special instructions before use.

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.

ETHYLENEDIAMINETETRAACETIC ACID (60-00-4)

60

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

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

R36 Irritating to eyes.

Material Safety Data Sheet

Material Name: RiboHybe™ Reagent

MSDS ID: 00231487

R61 May cause harm to the unborn child.

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.

“RTECS®” is a United States trademark owned and licensed under authority of the U.S. Government, by and through Accelrys, Inc. Portions ©Copyright 2011, U.S. Government. All rights reserved.

MSDS Update: 1/11/2011

End of Sheet 00231487