a member of the Roche Group

Material Safety Data Sheet

Material Name: 5p ERG DIG DNA Probe ISH **MSDS ID: VEN-051**

* * * 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: 5p ERG DIG DNA Probe ISH

Product Number(s)

854-4546, 06537782001

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

Repr.Cat.2; R:61

Risks

May cause harm to the unborn child.

EMERGENCY OVERVIEW

Color: yellow, brown
Physical Form: liquid
Odor: odorless
Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation, reproductive effects

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, 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, nausea, vomiting, stomach pain, weight loss, headache, dizziness, diarrhea, reproductive effects
Long Term: kidney damage, liver damage, reproductive 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)
75-12-7	Formamide 200-842-0	30-60	T	R:61

Not Available	Non-hazardous component	15-40	---	---
7647-14-5	Sodium chloride 231-598-3	1-5	Xi	R:36
60-00-4	Ethylenediamine tetraacetic 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

Slight fire hazard.

Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water

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: hydrogen chloride, oxides of carbon, oxides of nitrogen, oxides of sodium, 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. Keep unnecessary people away, isolate hazard area and deny entry.

* * * 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. Keep separated from incompatible substances.

* * * 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/m3 TWA
	Potential for dermal absorption
OSHA:	20 ppm TWA; 30 mg/m3 TWA
	30 ppm STEL; 45 mg/m3 STEL
Austria:	18 ppm STEL (4 X 15 min); 32 mg/m3 STEL (4 X 15 min)
	9 ppm MAK; 16 mg/m3 MAK
	skin notation
Belgium:	10 ppm TWA; 18 mg/m3 TWA
	Skin
Denmark:	10 ppm TWA; 18 mg/m3 TWA
	Potential for cutaneous absorption
Finland:	20 ppm STEL; 37 mg/m3 STEL
	10 ppm TWA; 19 mg/m3 TWA
	Potential for cutaneous absorption
France:	20 ppm VME; 30 mg/m3 VME
Germany (DFG):	skin notation
Greece:	30 ppm STEL; 45 mg/m3 STEL
	20 ppm TWA; 30 mg/m3 TWA
	skin - potential for cutaneous absorption
Ireland:	30 ppm STEL; 45 mg/m3 STEL
	20 ppm TWA; 30 mg/m3 TWA
Portugal:	10 ppm TWA
	skin - potential for cutaneous exposure
Spain:	10 ppm VLA-ED; 19 mg/m3 VLA-ED
	skin - potential for cutaneous exposure
Sweden:	10 ppm LLV; 20 mg/m3 LLV
	15 ppm STV; 30 mg/m3 STV
	Skin notation
United Kingdom:	30 ppm STEL; 56 mg/m3 STEL
	20 ppm TWA; 37 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

nitrile

Respiratory Protection

No respirator is required under normal conditions of use.

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

Physical State:	Liquid	**Appearance:**	Yellowish-brown liquid
Color:	yellow, brown	**Physical Form:**	liquid
Odor:	odorless	**Odor Threshold:**	Not available
pH:	~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:	1.154 g/cm3	**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

bases, combustible materials, halogenated compounds, metals, oxidizing materials

Decomposition Products

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

Ethylenediamine tetraacetic acid (60-00-4)

Oral LD50 Rat 1700 mg/kg

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: 5577 mg/kg Oral Rat LD50; 4000 mg/kg Oral Rat LD50; 5570 mg/kg Oral Rat LD50
Skin: 17 gm/kg Skin Rabbit LD50

Sodium chloride (7647-14-5)

Oral: 3000 mg/kg Oral Rat LD50

Ethylenediamine tetraacetic acid (60-00-4)

Oral: 30 mg/kg Oral Mouse 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

Ethylenediamine tetraacetic 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)

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

Local Effects

Formamide (75-12-7)

Irritant: inhalation,skin,eye

Sodium chloride (7647-14-5)

Irritant: eye

Ethylenediamine tetraacetic 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 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

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 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

None known.

* * * 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]

Ethylenediamine tetraacetic 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.

* * * 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.
Ethylenediamine tetraacetic 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
Ethylenediamine tetraacetic 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
Ethylenediamine tetraacetic 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

S38 In case of insufficient ventilation, wear suitable respiratory equipment.
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.
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.
Ethylenediamine tetraacetic 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 Communicty; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Farenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; 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.
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.

New MSDS: 12/8/2010

End of Sheet VEN-051