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## Material Safety Data Sheet

Material Name: INFORM® Chromosome 15 DIG Probe

MSDS ID: VEN-043

### \* \* \* 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:** INFORM® Chromosome 15 DIG Probe

#### Product Number(s)

800-4459, 980-4459

#### Product Use

Research use only

### \* \* \* 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

**Physical Form:** liquid

**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 components -	40-70	---	---

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60-00-4	Ethylenediamine tetraacetic acid 200-449-4	<1	Xi	R:36
77-86-1	Tris(Hydroxymethyl)aminomethane 201-064-4	<1	Xi	R:36-37-38

## \* \* \* 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

### 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 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. Keep separated from incompatible substances.

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

### Exposure Limits

#### Formamide (75-12-7)

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

#### Respiratory Protection

No respirator is required under normal conditions of use.

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

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	liquid
<b>Physical Form:</b>	liquid	<b>Odor:</b>	Not Available
<b>Odor Threshold:</b>	Not available	<b>pH:</b>	7.14
<b>Melting/Freezing Point:</b>	Not available	<b>Boiling Point:</b>	Not available
<b>Decomposition:</b>	Not available	<b>Flash Point:</b>	Not flammable
<b>Evaporation Rate:</b>	Not available	<b>LEL:</b>	Not available
<b>UEL:</b>	Not available	<b>Vapor Pressure:</b>	Not available
<b>Vapor Density (air = 1):</b>	Not available	<b>Density:</b>	Not available
<b>Specific Gravity (water = 1):</b>	Not available	<b>Water Solubility:</b>	miscible
<b>Log KOW:</b>	Not available	<b>Coeff. Water/Oil Dist.:</b>	Not available
<b>Auto Ignition:</b>	Not available	<b>Viscosity:</b>	Not available
<b>Volatility:</b>	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, metals, oxidizing materials, sodium

### Decomposition Products

**Thermal decomposition or combustion products:** 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

#### Ethylenediamine tetraacetic acid (60-00-4)

Oral LD50 Rat 1700 mg/kg

#### Tris(Hydroxymethyl)aminomethane (77-86-1)

Oral LD50 Rat 5900 mg/kg

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

**Skin:** 17 gm/kg Skin Rabbit LD50

## Acute Toxicity Level

### Formamide (75-12-7)

**Toxic:** inhalation.

**Moderately Toxic:** ingestion.

**Slightly Toxic:** dermal absorption.

### Ethylenediamine tetraacetic acid (60-00-4)

**Moderately Toxic:** ingestion.

### Tris(Hydroxymethyl)aminomethane (77-86-1)

**Slightly 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

## Local Effects

### Formamide (75-12-7)

**Irritant:** inhalation, skin, eye.

### Ethylenediamine tetraacetic acid (60-00-4)

**Irritant:** inhalation, skin, eye.

### Tris(Hydroxymethyl)aminomethane (77-86-1)

**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.

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## \* \* \* 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

#### 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

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## 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)**

Number 1509, hazard class 1 - low hazard to waters

**Ethylenediamine tetraacetic acid (60-00-4)**

Number 104, hazard class 2 - hazard to waters

**Tris(Hydroxymethyl)aminomethane (77-86-1)**

Number 4650, 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 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.

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## 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 - 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.
- R37 Irritating to respiratory system.
- R38 Irritating to skin.
- R61 May cause harm to the unborn child.

### Other Information

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End of Sheet VEN-043