



a member of the Roche Group

## Material Safety Data Sheet

Material Name: Bouin's Solution

MSDS ID: 00231679

### \*\*\* 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: Bouin's Solution

#### Product Number(s)

860-013, 1504044, 05279372001, 06038280001, 860-023, 1504088, 06038689001, 860-022, 1504087,  
05279364001, 06038662001

#### Product Use

clinical/research

### \*\*\* Section 2 - Hazards Identification \*\*\*

**NFPA Ratings: Health: 3 Fire: 1 Reactivity: 0**

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

#### Preparation

Carc.Cat.3,,Xi,Xn; R:20/21/22-41-37/38-43-40

#### Risks

Harmful by inhalation, in contact with skin and if swallowed.  
Irritating to respiratory system and skin.  
Limited evidence of a carcinogenic effect.  
Risk of serious damage to eyes.  
May cause sensitization by skin contact.

### EMERGENCY OVERVIEW

**Color:** yellow

**Physical Form:** liquid

**Odor:** formaldehyde odor, vinegar odor

**Major Health Hazards:** potentially fatal if inhaled, harmful if swallowed, harmful on contact with the skin, respiratory tract burns, skin burns, eye burns, mucous membrane burns, liver damage, allergic reactions, kidney damage, cancer hazard (in humans)

### POTENTIAL HEALTH EFFECTS

#### Inhalation

**Short Term:** burns, cough, allergic reactions, sore throat, difficulty breathing, wheezing, chest pain, headache, weakness, nausea, vomiting, lung congestion, changes in blood pressure, lung damage, blood disorders, kidney damage, liver damage, death

**Long Term:** burns, skin disorders, rash, itching, tooth discoloration, headache, nausea, drowsiness, allergic reactions, sleep disturbances, mood swings, menstrual disorders, kidney damage, liver damage, cancer

#### Skin

**Short Term:** burns, allergic reactions, absorption may occur, blood disorders, kidney damage, liver damage

**Long Term:** burns, allergic reactions, skin disorders, itching, rash, absorption may occur, kidney damage, liver damage

#### Eye

**Short Term:** burns, eye damage, itching, blurred vision, tearing, sensitivity to light, blindness

**Long Term:** burns, eye damage, itching, blurred vision, tearing, sensitivity to light, blindness

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## Ingestion

**Short Term:** burns, skin disorders, nausea, vomiting, loss of voice, diarrhea, headache, dizziness, blood disorders, stomach pain, changes in blood pressure, allergic reactions, thirst, changes in body temperature, kidney damage, irregular heartbeat, liver damage, lung congestion, convulsions, coma

**Long Term:** burns, gastrointestinal effects, vomiting, dizziness, allergic reactions, diarrhea, blood disorders, loss of voice, stomach pain, changes in body temperature, irregular heartbeat, difficulty breathing, lung congestion, kidney damage, liver damage, convulsions

## 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 component	60-100	---	---
88-89-1	PICRIC ACID 201-865-9	7-13	T E	R:23/24/25-3-4
50-00-0	FORMALDEHYDE 200-001-8	7-13	T C Xn	R:23/24/25-34-40-43
64-19-7	ACETIC ACID 200-580-7	3-7	C	R:10-35

### \*\*\* 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

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. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products.

#### Hazardous Combustion Products

**Thermal decomposition or combustion products:** oxides of carbon, oxides of nitrogen

#### Sensitivity to Mechanical Impact

Not sensitive

#### Sensitivity to Static Discharge

Not sensitive

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## \*\*\* Section 6 - Accidental Release Measures \*\*\*

### Water Release

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

### Occupational Spill/Release

Do not touch spilled material. Stop leak if possible without personal risk. **Small spills:** Absorb with sand or other non-combustible material. Small dry spills: 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 at room temperature. See original container for storage recommendations. Keep separated from incompatible substances.

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

### Exposure Limits

#### FORMALDEHYDE (50-00-0)

<b>ACGIH:</b>	0.3 ppm Ceiling Sensitizer
<b>NIOSH:</b>	0.016 ppm TWA 0.1 ppm Ceiling (15 min) 20 ppm IDLH
<b>OSHA:</b>	2 ppm STEL (Irritant and potential cancer hazard, See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level; 0.75 ppm TWA 3 ppm TWA (unless specified in 1910.1048) 10 ppm STEL (unless specified in 1910.1048, 30 min) 5 ppm Ceiling (unless specified in 1910.1048) 0.75 ppm TWA 2 ppm STEL (see 29 CFR 1910.1048)
<b>Austria:</b>	0.5 ppm STEL; 0.6 mg/m3 STEL 0.5 ppm MAK; 0.6 mg/m3 MAK skin notation 0.5 ppm Ceiling; 0.6 mg/m3 Ceiling Skin sensitizer
<b>Denmark:</b>	0.3 ppm Ceiling; 0.4 mg/m3 Ceiling
<b>Finland:</b>	1 ppm STEL; 1.2 mg/m3 STEL 0.3 ppm TWA; 0.37 mg/m3 TWA 1 ppm Ceiling; 1.2 mg/m3 Ceiling
<b>France:</b>	1 ppm VLCT 0.5 ppm VME
<b>Germany:</b>	0.3 ppm MAK; 0.37 mg/m3 MAK (no irritation should occur during mixed exposure) 0.6 ppm Peak (no irritation should occur during mixed exposure); 0.74 mg/m3 Peak (no irritation should occur during mixed exposure)
<b>Greece:</b>	2 ppm STEL; 2.5 mg/m3 STEL 2 ppm TWA; 2.5 mg/m3 TWA
<b>Ireland:</b>	2 ppm STEL; 2.5 mg/m3 STEL 2 ppm TWA; 2.5 mg/m3 TWA
<b>Japan</b>	0.2 ppm Ceiling; 0.24 mg/m3 Ceiling 0.1 ppm OEL; 0.12 mg/m3 OEL Group 2 airway sensitizer; Group 1 skin sensitizer
<b>Netherlands:</b>	0.5 mg/m3 STEL 0.15 mg/m3 TWA
<b>Portugal:</b>	0.3 ppm Ceiling Sensitizer
<b>Spain:</b>	0.3 ppm VLA-EC; 0.37 mg/m3 VLA-EC sensitizer
<b>Sweden:</b>	0.5 ppm LLV; 0.6 mg/m3 LLV 1 ppm CLV; 1.2 mg/m3 CLV Sensitizer
<b>United Kingdom:</b>	2 ppm STEL; 2.5 mg/m3 STEL 2 ppm TWA; 2.5 mg/m3 TWA

#### PICRIC ACID (88-89-1)

<b>ACGIH:</b>	0.1 mg/m3 TWA
<b>NIOSH:</b>	0.1 mg/m3 TWA 0.3 mg/m3 STEL Potential for dermal absorption 75 mg/m3 IDLH
<b>OSHA:</b>	0.1 mg/m3 TWA Prevent or reduce skin absorption 0.1 mg/m3 TWA prevent or reduce skin absorption
<b>EEC:</b>	0.1 mg/m3 TWA
<b>Austria:</b>	0.2 mg/m3 STEL (inhalable fraction, 8 X 5 min)

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0.1 mg/m<sup>3</sup> MAK (inhalable fraction)  
skin notation  
**Belgium:** 0.1 mg/m<sup>3</sup> TWA  
**Denmark:** 0.1 mg/m<sup>3</sup> TWA  
Potential for cutaneous absorption  
**Finland:** 0.3 mg/m<sup>3</sup> STEL  
0.1 mg/m<sup>3</sup> TWA  
Potential for cutaneous absorption  
**France:** 0.1 mg/m<sup>3</sup> VME  
Risk of cutaneous absorption  
**Germany:** 0.1 mg/m<sup>3</sup> TWA (inhalable fraction, exposure factor 1)  
skin notation  
**Greece:** 0.3 mg/m<sup>3</sup> STEL  
0.1 mg/m<sup>3</sup> TWA  
skin - potential for cutaneous absorption  
**Ireland:** 0.3 mg/m<sup>3</sup> STEL  
0.1 mg/m<sup>3</sup> TWA  
Potential for cutaneous absorption  
**Portugal:** 0.1 mg/m<sup>3</sup> TWA  
**Spain:** 0.1 mg/m<sup>3</sup> VLA-ED  
**United Kingdom:** 0.3 mg/m<sup>3</sup> STEL  
0.1 mg/m<sup>3</sup> TWA

## ACETIC ACID (64-19-7)

**ACGIH:** 10 ppm TWA  
15 ppm STEL  
**NIOSH:** 10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
15 ppm STEL; 37 mg/m<sup>3</sup> STEL  
50 ppm IDLH  
**OSHA:** 10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**EEC:** 10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**Austria:** 20 ppm STEL (8 X 5 min); 50 mg/m<sup>3</sup> STEL (8 X 5 min)  
10 ppm MAK; 25 mg/m<sup>3</sup> MAK  
**Belgium:** 15 ppm STEL; 38 mg/m<sup>3</sup> STEL  
10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**Denmark:** 10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**Finland:** 10 ppm STEL; 25 mg/m<sup>3</sup> STEL  
5 ppm TWA; 13 mg/m<sup>3</sup> TWA  
**France:** 10 ppm VLCT; 25 mg/m<sup>3</sup> VLCT  
**Germany:** 10 ppm TWA (exposure factor 2); 25 mg/m<sup>3</sup> TWA (exposure factor 2)  
10 ppm MAK; 25 mg/m<sup>3</sup> MAK  
20 ppm Peak; 50 mg/m<sup>3</sup> Peak  
**Greece:** 15 ppm STEL; 37 mg/m<sup>3</sup> STEL  
10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**Ireland:** 15 ppm STEL; 37 mg/m<sup>3</sup> STEL  
10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
**Japan** 10 ppm OEL; 25 mg/m<sup>3</sup> OEL  
**Portugal:** 10 ppm TWA  
15 ppm STEL  
**Spain:** 15 ppm VLA-EC; 37 mg/m<sup>3</sup> VLA-EC  
10 ppm VLA-ED; 25 mg/m<sup>3</sup> VLA-ED  
**Sweden:** 5 ppm LLV; 13 mg/m<sup>3</sup> LLV  
10 ppm STV; 25 mg/m<sup>3</sup> STV

## Ventilation

Provide adequate ventilation. Ensure compliance with applicable exposure limits.

## PERSONAL PROTECTIVE EQUIPMENT

### Eyes/Face

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

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## 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 \*\*\*

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	clear
<b>Color:</b>	yellow	<b>Physical Form:</b>	liquid
<b>Odor:</b>	formaldehyde odor, vinegar odor	<b>Odor Threshold:</b>	Not available
<b>pH:</b>	1.21	<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. May ignite or explode on contact with combustible materials.

### Materials to Avoid

acids, anhydrides, aniline, bases, isocyanates, metals, oxidizing materials, phenols, reducing agents

### Decomposition Products

**Thermal decomposition or combustion products:** oxides of carbon, oxides of nitrogen

### 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:

#### **FORMALDEHYDE (50-00-0)**

Inhalation LC50 Rat 0.578 mg/L 4 h; Oral LD50 Rat 500 mg/kg

#### **PICRIC ACID (88-89-1)**

Oral LD50 Rat 200 mg/kg

#### **ACETIC ACID (64-19-7)**

Inhalation LC50 Rat 11.4 mg/L 4 h; Oral LD50 Rat 3310 mg/kg; Dermal LD50 Rabbit 1060 mg/kg

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## RTECS Acute Toxicity (selected)

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

### FORMALDEHYDE (50-00-0)

**Inhalation:** 203 mg/m<sup>3</sup> Inhalation Rat LC50; 578 mg/m<sup>3</sup>/2 hour Inhalation Rat LC50; 250 ppm/2 hour Inhalation Rat LC50; 815 ppm/0.5 hour Inhalation Rat LC50; 250 ppm/4 hour Inhalation Rat LC50

**Oral:** 100 mg/kg Oral Rat LD50; 500 mg/kg Oral Rat LD50

**Skin:** 270 uL/kg Skin Rabbit LD50; 270 mg/kg Skin Rabbit LD50

### PICRIC ACID (88-89-1)

**Oral:** 200 mg/kg Oral Rat LD50; 200 mg/kg Oral Rat LD50

### ACETIC ACID (64-19-7)

**Inhalation:** 11000 mg/m<sup>3</sup>/4 hour Inhalation Rat LC50

**Oral:** 3310 mg/kg Oral Rat LD50

**Skin:** 1060 mg/kg Skin Rabbit LD50; 1060 uL/kg Skin Rabbit LD50

## Acute Toxicity Level

### FORMALDEHYDE (50-00-0)

**Highly Toxic:** inhalation.

**Toxic:** dermal absorption, ingestion.

### PICRIC ACID (88-89-1)

**Toxic:** ingestion.

### ACETIC ACID (64-19-7)

**Toxic:** inhalation.

**Moderately Toxic:** dermal absorption, ingestion.

## Irritation/Corrosivity

### RTECS Irritation

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

### FORMALDEHYDE (50-00-0)

4 ppm/5 minute(s) Eyes Human; 1 ppm/6 minute(s) Eyes Human mild; 2 percent Skin Human; 150 ug/3 day(s) intermittent Skin Human mild; 750 ug Eyes Rabbit severe; 37 percent Eyes Rabbit severe; 750 ug/24 hour Eyes Rabbit severe; 10 mg Eyes Rabbit severe; 540 mg/open Skin Rabbit mild; 50 mg/24 hour Skin Rabbit moderate; 2 mg/24 hour Skin Rabbit severe

### ACETIC ACID (64-19-7)

50 mg/24 hour Skin Human mild; 5 mg/30 second(s) Eyes Rabbit mild; 50 mg/24 hour Skin Rabbit mild; 525 mg/open Skin Rabbit severe

## Local Effects

### FORMALDEHYDE (50-00-0)

**Irritant:** skin, eye.

**Corrosive:** inhalation, skin, eye, ingestion.

### PICRIC ACID (88-89-1)

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

### ACETIC ACID (64-19-7)

**Corrosive:** inhalation, skin, eye, ingestion.

## Target Organs

### FORMALDEHYDE (50-00-0)

immune system (sensitizer).

### PICRIC ACID (88-89-1)

immune system (sensitizer), liver, kidneys.

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## Carcinogenicity

### Component Carcinogenicity

#### FORMALDEHYDE (50-00-0)

**ACGIH:** A2 - Suspected Human Carcinogen  
**OSHA:** Present  
**NIOSH:** potential occupational carcinogen  
**NTP:** Reasonably Anticipated To Be A Human Carcinogen  
**IARC:** Monograph 100F [in preparation]; Monograph 88 [2006]; Monograph 62 [1995]; Supplement 7 [1987] (Group 1 (carcinogenic to humans))  
**Austria:** Group B Carcinogen  
**Denmark:** Present  
**France:** Carcinogen category 3  
**Germany:** Category 4 (no significant contribution to human cancer)  
**Italy:** Category 3 Carcinogen  
**Portugal:** A2 - Suspected Human Carcinogen  
Carcinogen

#### PICRIC ACID (88-89-1)

**Germany:** Category 3B (could be carcinogenic for man)

#### ACETIC ACID (64-19-7)

**Denmark:** Present

## 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

eye disorders, respiratory disorders, skin disorders and allergies

## Additional Data

Alcohol may enhance the toxic effects.

## \*\*\* Section 12 - Ecological Information \*\*\*

### Component Analysis - Aquatic Toxicity

#### FORMALDEHYDE (50-00-0)

**Fish:** 96 Hr LC50 Pimephales promelas: 22.6 - 25.7 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 1510 µg/L [static]; 96 Hr LC50 Brachydanio rerio: 41 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 0.032 - 0.226 mL/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 100 - 136 mg/L [static]; 96 Hr LC50 Pimephales promelas: 23.2 - 29.7 mg/L [static]

**Invertebrate:** 48 Hr LC50 Daphnia magna: 2 mg/L; 48 Hr EC50 Daphnia magna: 11.3 - 18 mg/L [Static]

#### ACETIC ACID (64-19-7)

**Fish:** 96 Hr LC50 Pimephales promelas: 79 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 75 mg/L [static]

**Invertebrate:** 24 Hr EC50 Daphnia magna: 47 mg/L; 48 Hr EC50 Daphnia magna: 65 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.



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## \*\*\* 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

**FORMALDEHYDE (50-00-0)**

RCRA: waste\_number U122

## \*\*\* Section 14 - Transport Information \*\*\*

### US DOT Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN/NA #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### TDG Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### ADR Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### RID Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### IATA Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### ICAO Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8

### IMDG Information

**Shipping Name:** Corrosive liquid, acidic, organic, n.o.s. (Contains: FORMALDEHYDE, ACETIC ACID)

**UN #:** UN3265 **Hazard Class:** 8 **Packing Group:** II

**Required Label(s):** 8, +

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## \*\*\* 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.

#### FORMALDEHYDE (50-00-0)

SARA 302/304: 500 lb TPQ  
100 lb EPCRA RQ

SARA 313: 0.1 % de minimis concentration

CERCLA: 100 lb final RQ; 45.4 kg final RQ

OSHA (safety): 1000 lb TQ

#### PICRIC ACID (88-89-1)

SARA 313: 1.0 % de minimis concentration

#### ACETIC ACID (64-19-7)

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
FORMALDEHYDE	50-00-0	Yes	Yes	Yes	Yes	Yes	Yes
PICRIC ACID	88-89-1	Yes	Yes	Yes	Yes	Yes	Yes
ACETIC ACID	64-19-7	Yes	Yes	Yes	Yes	Yes	Yes

### California Proposition 65

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

### Canadian Regulations

#### Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

#### FORMALDEHYDE (50-00-0)

0.1 %

#### PICRIC ACID (88-89-1)

1 %

#### ACETIC ACID (64-19-7)

1 %

### WHMIS Classification

D1A, D2A, D2B, E.

### 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

#### FORMALDEHYDE (50-00-0)

Number 112, hazard class 2 - hazard to waters

#### PICRIC ACID (88-89-1)

Number 175, hazard class 2 - hazard to waters

#### ACETIC ACID (64-19-7)

Number 93, hazard class 1 - low hazard to waters (>25%)

### EU Marking and Labelling

#### Symbols

Xn Harmful

Xi Irritant

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## Risk Phrases

**R20/21/22** Harmful by inhalation, in contact with skin and if swallowed.

**R41** Risk of serious damage to eyes.

**R37/38** Irritating to respiratory system and skin.

**R43** May cause sensitization by skin contact.

**R40** Limited evidence of a carcinogenic effect.

## 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.

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

**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.

**FORMALDEHYDE (50-00-0)**

411 (Designated class 1 substance)

### 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.

**FORMALDEHYDE (50-00-0)**

Deleterious, 1; Deleterious

**PICRIC ACID (88-89-1)**

Deleterious (pure form, except explosives)

### 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.

**PICRIC ACID (88-89-1)**

Explosive substance

**ACETIC ACID (64-19-7)**

Flammable substance

### Industrial Safety and Health Law - Label Disclosure

This list contains those harmful substances present in this product whose names are to be indicated on a container label as specified by Article 18 of the Enforcement Order of the Industrial Safety and Health Law.

**FORMALDEHYDE (50-00-0)**

0.1 % weight

**PICRIC ACID (88-89-1)**

no threshold value specified

### 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

**R2** Risk of explosion by shock, friction, fire or other sources of ignition.  
**R3** Extreme risk of explosion by shock, friction, fire or other sources of ignition.  
**R4** Forms very sensitive explosive metallic compounds.  
**R10** Flammable.  
**R23/24/25** Toxic by inhalation, in contact with skin and if swallowed.  
**R34** Causes burns.  
**R35** Causes severe burns.  
**R40** Limited evidence of a carcinogenic effect.  
**R43** May cause sensitization by skin contact.

### 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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