



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)

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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)

ACGIH: 0.3 ppm Ceiling
Sensitizer

NIOSH: 0.016 ppm TWA
0.1 ppm Ceiling (15 min)
20 ppm IDLH

OSHA: 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)

Austria: 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

Denmark: 0.3 ppm Ceiling; 0.4 mg/m³ Ceiling

Finland: 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

France: 1 ppm VLCT
0.5 ppm VME

Germany: 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)

Greece: 2 ppm STEL; 2.5 mg/m³ STEL
2 ppm TWA; 2.5 mg/m³ TWA

Ireland: 2 ppm STEL; 2.5 mg/m³ STEL
2 ppm TWA; 2.5 mg/m³ TWA

Japan 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

Netherlands: 0.5 mg/m³ STEL
0.15 mg/m³ TWA

Portugal: 0.3 ppm Ceiling
Sensitizer

Spain: 0.3 ppm VLA-EC; 0.37 mg/m³ VLA-EC
sensitizer

Sweden: 0.5 ppm LLV; 0.6 mg/m³ LLV
1 ppm CLV; 1.2 mg/m³ CLV
Sensitizer

United Kingdom: 2 ppm STEL; 2.5 mg/m³ STEL
2 ppm TWA; 2.5 mg/m³ TWA

PICRIC ACID (88-89-1)

ACGIH: 0.1 mg/m³ TWA
NIOSH: 0.1 mg/m³ TWA
0.3 mg/m³ STEL
Potential for dermal absorption
75 mg/m³ IDLH

OSHA: 0.1 mg/m³ TWA
Prevent or reduce skin absorption
0.1 mg/m³ TWA
prevent or reduce skin absorption

EEC: 0.1 mg/m³ TWA

Austria: 0.2 mg/m³ STEL (inhalable fraction, 8 X 5 min)

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

ACETIC ACID (64-19-7)

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

Physical State:	Liquid	Appearance:	clear
Color:	yellow	Physical Form:	liquid
Odor:	formaldehyde odor, vinegar odor	Odor Threshold:	Not available
pH:	1.21	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:	Not available	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. 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/m³ Inhalation Rat LC50; 578 mg/m³/2 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/m³/4 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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MSDS Update: 11/10/2010

End of Sheet 00231679