

**SECTION 1: Identification****1.1. Identification**

Trade name : Bouin's Solution  
Product code : 38016SS1A

**1.2. Recommended use and restrictions on use**

Recommended use : Tissue fixative  
Restrictions on use : Other uses

**1.3. Supplier**

Leica Biosystems Richmond, Inc  
5205 Route 12  
Richmond, IL 60071 - USA  
T 844-534-2262  
[LBSNA-LBS-QA@leicabiosystems.com](mailto:LBSNA-LBS-QA@leicabiosystems.com) - [leicabiosystems.com](http://leicabiosystems.com)

**1.4. Emergency telephone number**

Organization/Company	Emergency number
ChemTrec	800-424-9300
International Calls (call collect)	+1 703-527-3887
Australia 24 Hr Poisons Information Centre	13 11 26

**SECTION 2: Hazard(s) identification****2.1. Classification of the substance or mixture****GHS-US classification**

Acute toxicity (oral) Category 4	Harmful if swallowed
Skin corrosion/irritation Category 1A	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	Causes serious eye damage
Skin sensitization, Category 1	May cause an allergic skin reaction
Germ cell mutagenicity Category 2	Suspected of causing genetic defects
Carcinogenicity Category 1A	May cause cancer
Specific target organ toxicity (single exposure) Category 1	Causes damage to organs

**2.2. GHS Label elements, including precautionary statements****GHS-US labeling**

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: Harmful if swallowed  
Causes severe skin burns and eye damage  
May cause an allergic skin reaction  
Causes serious eye damage  
Suspected of causing genetic defects  
May cause cancer  
Causes damage to organs

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Precautionary statements (GHS-US) : Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Do not breathe mist/vapours/spray.  
Avoid breathing mists/vapors/spray  
Wash thoroughly after handling  
Do not eat, drink or smoke when using this product  
Contaminated work clothing must not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
If swallowed: rinse mouth. Do NOT induce vomiting  
IF ON SKIN: Wash with plenty of soap and water  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
If inhaled: Remove person to fresh air and keep comfortable for breathing  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If exposed: Call a poison center/doctor  
If exposed or concerned: Get medical advice/attention  
Immediately call a poison center or doctor/physician  
Rinse mouth  
If skin irritation or rash occurs: Get medical advice/attention  
Wash contaminated clothing before reuse  
Store locked up  
Dispose of contents/container in accordance with all local/regional/national/international regulations

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
acetic acid	(CAS No) 64-19-7	< 10	Flam. Liq. 3, H226 Skin Corr. 1A, H314
Formaldehyde	(CAS No) 50-00-0	< 10	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:vapour), H331 Skin Corr. 1B, H314 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1A, H350
methanol	(CAS No) 67-56-1	< 3	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Inhalation:vapour), H331 STOT SE 1, H370

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Full text of hazard classes and H-statements : see section 16

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.

#### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact	: Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

#### 5.2. Specific hazards arising from the chemical

No additional information available

#### 5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Avoid contact with skin and eyes.
- Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

acetic acid (64-19-7)		
ACGIH	ACGIH TWA (ppm)	10 ppm (Acetic acid; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	15 ppm (Acetic acid; USA; Short time value; TLV - Adopted Value)
Formaldehyde (50-00-0)		
Not applicable		
methanol (67-56-1)		
ACGIH	ACGIH TWA (ppm)	200 ppm (Methanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	250 ppm (Methanol; USA; Short time value; TLV - Adopted Value)

#### 8.2. Appropriate engineering controls

- Appropriate engineering controls : In the United States, refer to OSHA 1910.1048 for requirements for handling of formaldehyde solutions.
- Environmental exposure controls : Avoid release to the environment.

#### 8.3. Individual protection measures/Personal protective equipment

##### Hand protection:

Protective gloves

##### Eye protection:

Safety glasses

##### Skin and body protection:

Wear suitable protective clothing

##### Respiratory protection:

Wear respiratory protection

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Yellow
Odor	: Pungent
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1.04
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

No additional information available

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

<b>acetic acid (64-19-7)</b>	
LD50 oral rat	3310 mg/kg body weight (Rat; Other; Read-across)
ATE US (oral)	3310 mg/kg body weight

<b>Formaldehyde (50-00-0)</b>	
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (vapors)	3 mg/l/4h

<b>methanol (67-56-1)</b>	
LD50 oral rat	> 5000 mg/kg (Rat; BASF test; Literature study; 1187-2769 mg/kg bodyweight; Rat; Weight of evidence)
LD50 dermal rabbit	15800 mg/kg (Rabbit; Literature study)
LC50 inhalation rat (mg/l)	85 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	64000 ppm/4h (Rat; Literature study)
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : May cause an allergic skin reaction.

Germ cell mutagenicity : Suspected of causing genetic defects .

Carcinogenicity : May cause cancer .

<b>Formaldehyde (50-00-0)</b>	
IARC group	1 - Carcinogenic to humans

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Causes damage to organs .

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Symptoms/effects after skin contact : Burns. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Burns.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

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<b>methanol (67-56-1)</b>	
LC50 fish 1	15400 mg/l (LC50; EPA 660/3 - 75/009; 96 h; Lepomis macrochirus; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	> 10000 mg/l (EC50; DIN 38412-11; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
LC50 fish 2	10800 mg/l (LC50; 96 h; Salmo gairdneri)

### 12.2. Persistence and degradability

<b>acetic acid (64-19-7)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	0.6 - 0.74 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.03 g O <sub>2</sub> /g substance
ThOD	1.07 g O <sub>2</sub> /g substance

<b>Formaldehyde (50-00-0)</b>	
Persistence and degradability	Readily biodegradable in water. No (test) data on mobility of the components available. Photodegradation in the air.
Biochemical oxygen demand (BOD)	0.64 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.06 g O <sub>2</sub> /g substance
ThOD	1.068 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.6

<b>methanol (67-56-1)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	0.6 - 1.12 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.42 g O <sub>2</sub> /g substance
ThOD	1.5 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.8 (Literature study)

### 12.3. Bioaccumulative potential

<b>acetic acid (64-19-7)</b>	
BCF fish 1	3.16 (BCF; Pisces)
Log Pow	-0.17 (Experimental value; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

<b>Formaldehyde (50-00-0)</b>	
Log Pow	-0.78 - 0.0
Bioaccumulative potential	Bioaccumulation: not applicable.

<b>methanol (67-56-1)</b>	
BCF fish 1	< 10 (BCF; 72 h; Leuciscus idus)
Log Pow	-0.77 (Experimental value; Other)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 12.4. Mobility in soil

<b>acetic acid (64-19-7)</b>	
Surface tension	0.028 N/m (20 °C)
Log Koc	log Koc, 0.06; QSAR
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

<b>methanol (67-56-1)</b>	
Surface tension	0.023 N/m (20 °C)

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### methanol (67-56-1)

Log Koc : Koc,PCKOCWIN v1.66; 1; Calculated value

#### 12.5. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3265 Corrosive liquid, acidic, organic, n.o.s. (Acetic Acid, Formaldehyde), 8, III

UN-No.(DOT) : UN3265

Proper Shipping Name (DOT) : Corrosive liquid, acidic, organic, n.o.s.  
Acetic Acid, Formaldehyde

Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : III - Minor Danger

Hazard labels (DOT) : 8 - Corrosive



DOT Symbols : G - Identifies PSN requiring a technical name

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

#### Transport by sea

Transport document description (IMDG) : UN 3265 Corrosive Liquid, Acidic, Organic, N.O.S., (Contains: Acetic Acid, Formaldehyde), 8, III

UN-No. (IMDG) : 3265

Proper Shipping Name (IMDG) : Corrosive Liquid, Acidic, Organic, N.O.S., (Contains: Acetic Acid, Formaldehyde)

Class (IMDG) : 8 - Corrosive substances

Packing group (IMDG) : III - substances presenting low danger

#### Air transport

Transport document description (IATA) : UN 3265 Corrosive Liquid, Acidic, Organic, N.O.S., (Contains: Acetic Acid, Formaldehyde), 8, III

UN-No. (IATA) : 3265

Proper Shipping Name (IATA) : Corrosive Liquid, Acidic, Organic, N.O.S., (Contains: Acetic Acid, Formaldehyde)

Class (IATA) : 8 - Corrosives



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Packing group (IATA) : III - Minor Danger

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Formaldehyde (50-00-0)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 100 lb

SARA Section 302 Threshold Planning  
Quantity (TPQ) 500 lb

##### methanol (67-56-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 5000 lb

#### 15.2. International regulations

##### CANADA

No additional information available

##### Formaldehyde (50-00-0)

Listed on the Canadian DSL (Domestic Substances List)

##### methanol (67-56-1)

Listed on the Canadian DSL (Domestic Substances List)

##### EU-Regulations

No additional information available

##### National regulations

No additional information available

#### 15.3. US State regulations

##### Formaldehyde (50-00-0)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	40

##### methanol (67-56-1)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	Yes	No	No	

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### Formaldehyde (50-00-0)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

### methanol (67-56-1)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

Full text of H-phrases:

H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H301	Toxic if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H331	Toxic if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H370	Causes damage to organs

SDS US Leica

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*