

# SAFETY DATA SHEET

Bouin's Solution

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Bouin's Solution  
**Part no.** : AR166, AR167, AR173  
**Validation date** : 1/28/2025

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** : Laboratory use  
 Container type: Dispenser Pack  
 AR166 // Bouin's Solution // Artisan Gomori's Green Trichrome Stain Kit // 65 mL  
 AR167 // Bouin's Solution // Artisan Gomori's Blue Trichrome Stain Kit // 65 mL  
 AR173 // Bouin's Solution // Artisan Masson's Trichrome Stain Kit // 65 mL and 115 mL  
 Reference number: SDS021

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
 5301 Stevens Creek Blvd  
 Santa Clara, CA 95051, USA  
 Tel: +1 800 227 9770

Agilent Technologies Singapore (International) Pte Ltd.  
 No. 1 Yishun Avenue 7  
 Singapore, 768923  
 Tel. (65) 6276 2622

Agilent Technologies Denmark ApS  
 Produktionsvej 42  
 2600 Glostrup,  
 Denmark  
 Tel. +45 44 85 95 00

www.Agilent.com

**e-mail address of person responsible for this SDS** : SDS@Agilent.com

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H302	ACUTE TOXICITY (oral) - Category 4
H314	SKIN CORROSION - Category 1
H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1
H341	GERM CELL MUTAGENICITY - Category 2
H350	CARCINOGENICITY - Category 1
H371	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 2



## Section 3. Composition/information on ingredients

Ingredient name	%	Identifiers
Formaldehyde, solution	≤9.8	CAS: 50-00-0
Acetic acid	≤5.1	CAS: 64-19-7
Methanol	≤3.7	CAS: 67-56-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause damage to organs following a single exposure if inhaled. May cause respiratory irritation.
- Skin contact** : Causes severe burns. May cause damage to organs following a single exposure in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Corrosive to the digestive tract. Causes burns. May cause damage to organs following a single exposure if swallowed.

#### Over-exposure signs/symptoms

## Section 4. First aid measures

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

### 5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
Formaldehyde.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- 7.2 Conditions for safe storage, including any incompatibilities** : Specific storage conditions: Please consult the label. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Formaldehyde, solution	<p><b>NIOSH REL (United States, 10/2020)</b> NIA. TWA 10 hours: 0.016 ppm. CEIL 15 minutes: 0.1 ppm.</p> <p><b>OSHA PEL Z2 (United States, 2/2013)</b> TWA 8 hours: 0.75 ppm. STEL 15 minutes: 2 ppm.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b> STEL 15 minutes: 2 ppm. TWA 8 hours: 0.75 ppm.</p> <p><b>OSHA PEL (United States, 5/2018)</b> TWA 8 hours: 0.75 ppm. STEL 15 minutes: 2 ppm.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b> TWA 8 hours: 0.75 ppm. STEL 15 minutes: 2 ppm.</p> <p><b>ACGIH TLV (United States, 1/2024)</b> A1. Skin sensitizer , Inhalation sensitizer. STEL 15 minutes: 0.3 ppm. TWA 8 hours: 0.1 ppm.</p>
Acetic acid	<p><b>NIOSH REL (United States, 10/2020)</b> TWA 10 hours: 10 ppm. TWA 10 hours: 25 mg/m<sup>3</sup>. STEL 15 minutes: 15 ppm. STEL 15 minutes: 37 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b> STEL 15 minutes: 37 mg/m<sup>3</sup>. STEL 15 minutes: 15 ppm. C: 40 ppm. TWA 8 hours: 25 mg/m<sup>3</sup>. TWA 8 hours: 10 ppm.</p> <p><b>OSHA PEL (United States, 5/2018)</b> TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b> TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024)</b> TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m<sup>3</sup>. STEL 15 minutes: 15 ppm. STEL 15 minutes: 37 mg/m<sup>3</sup>.</p>
Methanol	<p><b>NIOSH REL (United States, 10/2020)</b> Absorbed through skin. TWA 10 hours: 200 ppm. TWA 10 hours: 260 mg/m<sup>3</sup>. STEL 15 minutes: 250 ppm. STEL 15 minutes: 325 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b> Absorbed through skin. STEL 15 minutes: 325 mg/m<sup>3</sup>. STEL 15 minutes: 250 ppm. C: 1000 ppm. TWA 8 hours: 260 mg/m<sup>3</sup>. TWA 8 hours: 200 ppm.</p>

## Section 8. Exposure controls/personal protection

### OSHA PEL (United States, 5/2018)

TWA 8 hours: 200 ppm.

TWA 8 hours: 260 mg/m<sup>3</sup>.

### OSHA PEL 1989 (United States, 3/1989)

Absorbed through skin.

TWA 8 hours: 200 ppm.

TWA 8 hours: 260 mg/m<sup>3</sup>.

STEL 15 minutes: 250 ppm.

STEL 15 minutes: 325 mg/m<sup>3</sup>.

### ACGIH TLV (United States, 1/2024)

Absorbed through skin.

TWA 8 hours: 200 ppm.

TWA 8 hours: 262 mg/m<sup>3</sup>.

STEL 15 minutes: 250 ppm.

STEL 15 minutes: 328 mg/m<sup>3</sup>.

### Biological exposure indices

Ingredient name	Exposure indices
Methanol	ACGIH BEI (United States, 1/2024) BEI: 15 mg/l, methanol [in urine]. Sampling time: end of shift.

### 8.2 Exposure controls

#### Appropriate engineering controls

- : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

#### Skin protection

##### Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

##### Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid.
- Color** : Yellow.
- Odor** : Formaldehyde. / Vinegar-like
- Odor threshold** : Not available.
- pH** : 1.2 to 1.6
- Melting point/freezing point** : Not available.
- Boiling point or initial boiling point and boiling range** : Not available.
- Flash point** :

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
Methanol	9.7	49.5	Abel-Pensky	-	-	-
Acetic acid	39	102.2	-	-	-	-

- Evaporation rate** : Not available.
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Methanol	126.96329	16.9	-	-	-	-
water	17.5	2.3	-	92.258	12.3	-

- Relative vapor density** : Not available.
- Relative density** : Not available.
- Solubility(ies)** :

Media	Result
water	Soluble

- Miscible with water** : Yes.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** :

Ingredient name	°C	°F	Method
Formaldehyde, solution	430	806	-
Methanol	455	851	DIN 51794

- Decomposition temperature** : Not available.

## Section 9. Physical and chemical properties and safety characteristics

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.  
Reactive or incompatible with the following materials:  
alkalis

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

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product/ingredient name

##### Result

Formaldehyde, solution

Rat - Oral - LD50	100 mg/kg
Rabbit - Dermal - LD50	270 mg/kg
Rat - Inhalation - LC50 Vapor	11000 mg/m <sup>3</sup> [4 hours]
Rabbit - Dermal - LD50	15800 mg/kg
Rat - Oral - LD50	5600 mg/kg
Rat - Inhalation - LC50 Vapor	145000 ppm [1 hours]
Rat - Inhalation - LC50 Vapor	64000 ppm [4 hours]
Rat - Inhalation - LC50 Vapor	83.84 mg/l [4 hours]
Rat - Inhalation - LC50 Vapor	189.95 mg/l [1 hours]

Acetic acid  
Methanol

**Conclusion/Summary [Product]** : Not available.

#### Skin corrosion/irritation

##### Product/ingredient name

##### Result

Formaldehyde, solution

Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours
Rabbit - Skin - Severe irritant	Duration of treatment/ exposure: 24 hours
Rabbit - Skin - Severe irritant	-
Mouse - Skin - Moderate irritant	-
Rat - Skin - Moderate irritant	-
Rabbit - Skin - Severe irritant	-
Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours

Acetic acid  
Methanol

## Section 11. Toxicological information

**Conclusion/Summary [Product]** : Repeated exposure may cause skin dryness or cracking.

**Ingredient name**

Methanol

**Conclusion/Summary**

Repeated exposure may cause skin dryness or cracking.

### Serious eye damage/eye irritation

Formaldehyde, solution

**Result**

Rabbit - Eyes - Severe irritant

Duration of treatment/  
exposure: 24 hours

Rabbit - Eyes - Severe irritant

-

Rabbit - Eyes - Severe irritant

-

Rabbit - Eyes - Severe irritant

-

Mouse - Eyes - Moderate irritant

-

Methanol

Rabbit - Eyes - Moderate irritant

Duration of treatment/  
exposure: 24 hours

Rabbit - Eyes - Moderate irritant

-

Rabbit - Eyes - Severe irritant

-

**Conclusion/Summary [Product]** : Not available.

**Ingredient name**

Acetic acid

Methanol

**Conclusion/Summary**

Causes eye irritation.

May cause eye irritation.

### Respiratory corrosion/irritation

**Product/ingredient name**

**Conclusion/Summary [Product]** : Not available.

**Ingredient name**

Acetic acid

**Conclusion/Summary**

May cause respiratory irritation.

### Respiratory or skin sensitization

**Skin**

**Conclusion/Summary [Product]** : Not available.

**Respiratory**

**Conclusion/Summary [Product]** : Not available.

### Germ cell mutagenicity

**Conclusion/Summary [Product]** : Not available.

### Carcinogenicity

Not available.

**Conclusion/Summary [Product]** : Not available.

**Classification**

Product/ingredient name	OSHA	IARC	NTP
Formaldehyde, solution	+	1	Known to be a human carcinogen.

## Section 11. Toxicological information

### Reproductive toxicity

**Conclusion/Summary [Product]** : Repeated or prolonged exposure to the substance can produce reproductive system damage.

**Ingredient name**

☑ Methanol

**Conclusion/Summary**

Repeated or prolonged exposure to the substance can produce reproductive system damage.

### Specific target organ toxicity (single exposure)

**Product/ingredient name**

☑ Formaldehyde, solution

Methanol

**Result**

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause damage to organs following a single exposure if inhaled. May cause respiratory irritation.
- Skin contact** : ☑ Causes severe burns. May cause damage to organs following a single exposure in contact with skin. May cause an allergic skin reaction.
- Ingestion** : ☑ Harmful if swallowed. Corrosive to the digestive tract. Causes burns. May cause damage to organs following a single exposure if swallowed.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

## Section 11. Toxicological information

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.

**General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : Suspected of causing genetic defects.

**Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Bouin's Solution	762.3	2116.0	N/A	20.7	N/A
Formaldehyde, solution	100	270	N/A	3	N/A
Acetic acid	N/A	N/A	N/A	11	N/A
Methanol	100	300	N/A	3	N/A

**Other information** : Adverse symptoms may include the following: blurred or double vision, Eye contact can result in corneal damage or blindness. Repeated or prolonged exposure to the substance can produce liver damage. Narcotic effect. May cause nervous system disturbances.

## Section 12. Ecological information

### 12.1 Toxicity

#### Product/ingredient name

#### Result

Formaldehyde, solution	Acute - LC50 - Fresh water	1.41 ppm [96 hours]
	Acute - EC50 - Marine water	3.05 mg/l [96 hours]
	Acute - EC50 - Fresh water	3.26 mg/l [48 hours]
	Chronic - NOEC - Fresh water	3000 ppm [21 days]
	Chronic - NOEC - Fresh water	1.56 mg/l [12 weeks]
Acetic acid	Acute - LC50 - Fresh water	75 ppm [96 hours]
Methanol	Acute - LC50 - Marine water	2500 mg/l [48 hours]
	Acute - LC50 - Fresh water	290 mg/l [96 hours]
	Chronic - NOEC - Marine water	9.96 mg/l [96 hours]
	Acute - EC50 - Marine water	2736 mg/l [96 hours]

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

#### Product/ingredient name

#### Result

## Section 12. Ecological information

Formaldehyde, solution      OECD [Ready Biodegradability - DOC Die-Away Test]      99% [28 days] - Readily      Aerobic

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Formaldehyde, solution	-	-	Readily
Acetic acid	-	-	Readily
Methanol	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Formaldehyde, solution	0.35	-	Low
Acetic acid	-0.17	3.16	Low
Methanol	-0.77	<10	Low

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Formaldehyde	50-00-0	Listed	U122
Methanol (l)	67-56-1	Listed	U154

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

	<b>DOT Classification</b>	<b>TDG Classification</b>	<b>Mexico Classification</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	UN1760	UN1760	UN1760	UN1760	UN1760
<b>UN proper shipping name</b>	Corrosive liquids, n.o.s. (Formaldehyde, solution, Acetic acid)	CORROSIVE LIQUID, N.O.S. (Formaldehyde, solution, Acetic acid)	☑ LIQUIDO CORROSIVO, N. E.P. (Formaldehyde, solution, Acetic acid)	CORROSIVE LIQUID, N.O.S. (Formaldehyde, solution, Acetic acid)	Corrosive liquid, n.o.s. (Formaldehyde, solution, Acetic acid)
<b>Transport hazard class(es)</b>	8 	8 	8 	8 	8 
<b>Packing group</b>	II	II	II	II	II
<b>Environmental hazards</b>	No.	No.	No.	No.	No.

### Additional information

If shipped as part of a kit "UN3316 (Chemical kit), Class 9, PG II" can be used. Precondition: UN3316 must be allowed for the remaining vials in same kit too.

**DOT Classification** : **Reportable quantity** 1048.2 lbs / 475.88 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.  
**Limited quantity** Yes.  
**Packaging instruction** Exceptions: 154. Non-bulk: 202. Bulk: 242.  
**Quantity limitation** Passenger aircraft/rail: 1 L. Cargo aircraft: 30 L.  
**Special provisions** B2, IB2, T11, TP2, TP27

**TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).  
**Explosive Limit and Limited Quantity Index** 1  
**Passenger Carrying Road or Rail Index** 1  
**Special provisions** 16

**Mexico Classification** : **Special provisions** 274

**IMDG** : **Emergency schedules** F-A, S-B  
**Special provisions** 274

**IATA** : **Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0.5 L. Packaging instructions: Y840.  
**Special provisions** A3, A803

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**U.S. Federal regulations** : **Clean Water Act (CWA) 307**: 2,4,6-trinitrophenol  
**Clean Water Act (CWA) 311**: Formaldehyde, solution; Acetic acid; 2,4,6-trinitrophenol

**Clean Air Act (CAA) 112 regulated toxic substances**: Formaldehyde, solution

#### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

#### SARA 302/304

##### Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Formaldehyde, solution	≤9.8	Yes.	500	56.3	100	11.3

**SARA 304 RQ** : 1048.2 lbs / 475.9 kg

#### SARA 311/312

**Classification** : ACUTE TOXICITY (oral) - Category 4  
 SKIN CORROSION - Category 1  
 SERIOUS EYE DAMAGE - Category 1  
 SKIN SENSITIZATION - Category 1  
 GERM CELL MUTAGENICITY - Category 2  
 CARCINOGENICITY - Category 1  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 2  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
 HNOC - Corrosive to digestive tract

##### Composition/information on ingredients

Name	%	Classification
Formaldehyde, solution	≤9.8	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 3 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Corrosive to digestive tract
Acetic acid	≤5.1	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract [severe]

## Section 15. Regulatory information

Methanol	≤3.7	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
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### SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Formaldehyde, solution	50-00-0	≤9.8
	Methanol	67-56-1	≤3.7
Supplier notification	Formaldehyde, solution	50-00-0	≤9.8
	Methanol	67-56-1	≤3.7

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

- Massachusetts** : The following components are listed: FORMALDEHYDE; ACETIC ACID; METHANOL
- New York** : The following components are listed: Formaldehyde; Acetic acid; Methanol
- New Jersey** : The following components are listed: FORMALDEHYDE; ACETIC ACID; METHYL ALCOHOL
- Pennsylvania** : The following components are listed: FORMALDEHYDE; ACETIC ACID; METHANOL
- California Prop. 65**

**⚠ WARNING:** This product can expose you to chemicals including Formaldehyde, which is known to the State of California to cause cancer, and Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Ingredient name	No significant risk level	Maximum acceptable dosage level
Formaldehyde	Yes.	-
Methanol	-	Yes.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Japan** : **Japan inventory (CSCL):** All components are listed or exempted.  
**Japan inventory (ISHL):** All components are listed or exempted.
- New Zealand** : All components are listed or exempted.

## Section 15. Regulatory information

<b>Philippines</b>	: All components are listed or exempted.
<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: All components are listed or exempted.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are active or exempted.
<b>Viet Nam</b>	: All components are listed or exempted.

## Section 16. Other information

### Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method On basis of test data On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

### History

<b>Date of issue/Date of revision</b>	: 01/28/2025
<b>Date of previous issue</b>	: 05/02/2023
<b>Version</b>	: 8

### Key to abbreviations

: ATE = Acute Toxicity Estimate
: BCF = Bioconcentration Factor
: DOT = Department of Transportation
: GHS = Globally Harmonized System of Classification and Labelling of Chemicals
: IATA = International Air Transport Association
: IBC = Intermediate Bulk Container
: IMDG = International Maritime Dangerous Goods
: IMO = International Maritime Organization
: LogPow = logarithm of the octanol/water partition coefficient
: MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
: N/A = Not available
: SGG = Segregation Group
: TDG = Transportation of Dangerous Goods
: UN = United Nations

Indicates information that has changed from previously issued version.

### Notice to reader

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