

# Safety Data Sheet

## Bouin's Fixative

### Section 1 - Chemical Product and Company Identification

**SDS Name:** Bouin's Fixative

**Catalog Numbers:** SO-306, F-362-9A, F-367-1, F-383-4, F-386-1, F-40

**Company Identification:** Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.  
10 ELECTRONICS AVENUE  
DANVERS, MA 01923

**For information, call:** 978-739-4883

**Emergency Number:** 800-424-9300

**For CHEMTREC assistance, call:** 800-424-9300

### Section 2 - Hazards Identification

#### GHS Classifications

H290-Corrosive to metals: 1

H302-Acute toxicity, oral: 4

H312-Acute toxicity, dermal: 4

H314-Skin corrosion/irritation: 1A

H317-Sensitisation, skin: 1

H318-Serious eye damage/eye irritation: 1

H331-Acute toxicity, inhalation: 3

H335-Specific target organ toxicity, single exposure; Respiratory tract irritation: 3

H341-Germ cell mutagenicity: 2

H350-Carcinogenicity: 1A

H360-Reproductive toxicity: 1B

H370-Specific target organ toxicity, single exposure: 1

H372-Specific target organ toxicity, repeated exposure: 1

H401-Hazardous to the aquatic environment, acute hazard: 2

#### Pictograms or Hazard symbols and Hazard statement(s):



Signal Word: Danger

## **Hazard Statements:**

H290-May be corrosive to metals  
H302-Harmful if swallowed  
H312-Harmful in contact with skin  
H314-Causes severe skin burns and eye damage  
H317-May cause an allergic skin reaction  
H318-Causes serious eye damage  
H331-Toxic if inhaled  
H335-May cause respiratory irritation  
H341-Suspected of causing genetic defects  
H350-May cause cancer  
H360-May damage fertility or the unborn child  
H370-Causes damage to organs (target organs: respiratory system, central nervous system, and optic nerve)  
H372-Causes damage to organs through prolonged or repeated exposure (target organs: kidney, liver, heart, spleen, and blood)  
H401-Toxic to aquatic life

## **Precautionary Statements:**

P201-Obtain special instructions before use.  
P202-Do not handle until all safety precautions have been read and understood.  
P234-Keep only in original packaging.  
P260-Do not breathe dust/fume/gas/mist/vapours/spray.  
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264-Wash thoroughly after handling.  
P270-Do not eat, drink, or smoke when using this product.  
P271-Use only outdoors or in a well-ventilated area.  
P272-Contaminated work clothing should not be allowed out of the workplace.  
P273-Avoid release to the environment.  
P280-Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312-If swallowed: Call a Poison Center/doctor if you feel unwell.  
P301+P330+P331-If swallowed: Rinse mouth. Do NOT induce vomiting.  
P302+P352-If on skin: Wash with plenty of soap and water.  
P303+P361+P353-If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340-If Inhaled: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338-If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P311-If exposed or concerned: Call a Poison Center/doctor.  
P308+P313-If exposed or concerned: Get medical advice/attention.  
P310-Immediately call a Poison Center/doctor.  
P311-Call a Poison Center/doctor.  
P312-Call a Poison Center/doctor if you feel unwell.  
P314-Get medical advice/attention if you feel unwell.  
P330-Rinse mouth.  
P333+P313-If skin irritation or rash occurs: Get medical advice/attention.  
P362+P364-Take off contaminated clothing and wash it before reuse.  
P363-Wash contaminated clothing before reuse.  
P390-Absorb spillage to prevent material damage.  
P403+P233-Store in a well-ventilated place. Keep container tightly closed.  
P405-Store locked up.  
P406-Store in a corrosion resistant container with a resistant inner liner.  
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

### Section 3 - Composition, Information on Ingredients

| CAS#      | Chemical Name       | Percent  |
|-----------|---------------------|----------|
| 50-00-0   | Formaldehyde 37-40% | 23.8 v/v |
| 64-19-7   | Glacial Acetic Acid | 4.8 v/v  |
| 67-56-1   | Methyl Alcohol      | 3.6 v/v  |
| 88-89-1   | Picric Acid         | 1.7 w/v  |
| 7732-18-5 | Water               | Balance  |

### Section 4 - First Aid Measures

**Eye Exposure:** In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Get immediate medical advice.

**Dermal Exposure:** In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing and shoes before reuse. Get medical advice.

**Oral Exposure:** If swallowed, get immediate medical advice. Do not induce vomiting. Rinse mouth with water.

**Inhalation Exposure:** If inhaled, remove to fresh air. Get immediate medical advice.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam.

**Hazardous Combustion Products:** Carbon oxides, nitrogen oxides, hydrogen, formaldehyde, irritating and toxic fumes and gases.

**Flash Point:** Not available

**Autoignition Temperature:** Not available

**Explosion Limits, Lower:** Not available

**Upper:** Not available

**NFPA Rating:** (estimated) Health: 2; Flammability: 0; Instability: 0

Note: Picric acid can explode on contact when dry. Do not allow this material to dry out. Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 6 - Accidental Release Measures

### **Procedure(s) of Personal Precaution(s):**

Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation.

**Methods for Cleaning up:** Absorb with sand, earth, or vermiculite. Carefully sweep up and containerize for proper disposal. Do not release to environment. Do not release to drains. Take precautionary measures against static discharge. Eliminate all sources of ignition. Do not touch, walk through, or scatter spilled material.

## Section 7 - Handling and Storage

Use care when handling. Wear personal protective equipment. Wash thoroughly after handling. Use with adequate ventilation. Use only under a chemical fume hood. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Keep in a tightly closed non-metal container. Store in a cool, dry, and well-ventilated area. Keep away from incompatible materials.

Note: Picric acid can explode on contact when dry. Do not allow this material to dry out. Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### **Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**Exposure Limits:**

| Chemical Name                      | ACGIH - TLV                      | NIOSH - IDLH  | OSHA - Final PELs                        |
|------------------------------------|----------------------------------|---|--|
| Formaldehyde<br>CAS#50-00-0        | 0.1 ppm TWA<br>0.3 ppm STEL      | 0.1 ppm Ceiling<br>0.016 ppm TWA<br>20 ppm IDLH   | 0.75 ppm TWA<br>2 ppm STEL               |
| Glacial Acetic Acid<br>CAS#64-19-7 | 10 ppm TWA<br>15 ppm STEL        | 10 ppm TWA<br>25 mg/m <sup>3</sup> TWA<br>15 ppm STEL<br>37 mg/m <sup>3</sup> STEL<br>50 ppm IDLH       | 10 ppm TWA<br>25 mg/m <sup>3</sup> TWA   |
| Methyl Alcohol<br>CAS#67-56-1      | 200 ppm TWA<br>250 ppm Skin STEL | 200 ppm TWA<br>260 mg/m <sup>3</sup> TWA<br>250 ppm STEL<br>325 mg/m <sup>3</sup> STEL<br>6000 ppm IDLH | 200 ppm TWA<br>260 mg/m <sup>3</sup> TWA |
| Picric Acid<br>CAS#88-89-1         | 0.1 mg/m <sup>3</sup> TWA        | 0.1 mg/m <sup>3</sup> TWA<br>0.3 mg/m <sup>3</sup> STEL   | 0.1 mg/m <sup>3</sup> TWA                |

**OSHA Vacated PELs:** Formaldehyde: 5 ppm Ceiling; 3 ppm TWA; 10 ppm STEL  
 Glacial Acetic Acid: 10 ppm TWA; 25 mg/m<sup>3</sup> TWA  
 Methyl Alcohol: 200 ppm TWA; 260 mg/m<sup>3</sup> TWA; 250 ppm STEL;  
 325 mg/m<sup>3</sup> Skin STEL

|  |
|--|
| Section 9 - Physical and Chemical Properties |
|--|

**Physical State:** Liquid**Appearance:** Yellow**Odor:** Formaldehyde, pungent**Vapor Pressure:** Not available**Odor Threshold:** Not available**Vapor Density:** Not available**pH:** 1.20-1.60**Relative Density:** Not available**Melting point/freezing point:** Not available**Solubility:** Soluble in water**Boiling Point:** Not available**Flash Point:** Not available**Evaporation Rate:** Not available**Flammability (solid, gas):** Not applicable**Partition coefficient: n-octanol/water:** Not applicable**Autoignition Temperature:** Not available**Decomposition Temperature:** Not available**Viscosity:** Not available**Specific Gravity/Density:** Not available

|                                       |
|---------------------------------------|
| Section 10 - Stability and Reactivity |
|---------------------------------------|

**Chemical Stability:** Stable under ordinary conditions of use and storage.**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat, sparks, flame,

and freezing. An explosive mixture results when the aqueous solution crystallizes. Do not let dry picric acid (crystals) form in container or on the cap threads of container. Dry picric acid is explosive. Do not allow to dry out. Picric acid forms salts with many metals which are sensitive to heat, friction, or impact. Avoid freezing.

**Incompatibilities with Other Materials:** Metals, alkalis, oxidizing agents, reducing agents, bases, acids, copper, lead, nickel, zinc, heavy metal salts, ammonia, amines, concrete, aniline, phenol, isocyanates, acid anhydrides, peroxides, acid chlorides, nitriles, chromic acid, ethylene glycol, perchloric acid, nitric acid, phosphorous trichloride, oxidizers, sodium peroxide, carbonates, hydroxides, oxides, phosphates.

**Hazardous Decomposition Products:** Carbon oxides, nitrogen oxides, hydrogen, formaldehyde, irritating and toxic fumes and gases.

Note: Picric acid can explode on contact when dry. Do not allow this material to dry out. Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 11 - Toxicological Information

### **CAS#50-00-0 Formaldehyde:**

LD50 Oral: 500 mg/kg (rat)

LD50 Dermal: 270 mg/kg (rabbit)

LC50 Inhalation: 0.578 mg/L 4h (rat)

**Carcinogenicity:** Formaldehyde CAS#50-00-0 is listed by IARC (Group 1, Carcinogenic to Humans), NTP (Known Carcinogen), ACGIH (A1, Known Human Carcinogen), OSHA (Specifically Regulated Carcinogen), and California Prop. 65 as a carcinogen.

### **CAS#64-19-7 Glacial Acetic Acid: RTECS#: AF1225000**

LD50 Oral: 3310 mg/kg (rat)

LD50 Dermal: 1060 mg/kg (rabbit)

LC50 Inhalation: 11.4 mg/L 4h (rat)

**Mutagen, reproductive effector per RTECS.**

Skin corrosion/irritation: skin (rabbit), causes severe burns.

Serious eye damage/eye irritation: eyes (rabbit), corrosive to eyes, causes serious eye damage.

**Carcinogenicity:** Glacial Acetic Acid CAS#64-19-7 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

### **CAS#67-56-1 Methyl Alcohol: RTECS#: PC1400000**

LD50 Oral: 100.1 mg/kg (expert judgement)

LD50 Dermal: 300.1 mg/kg (expert judgement)

LC50 Inhalation: 3.1 mg/L 4h vapor (expert judgement)

**Mutagen, reproductive effector per RTECS.**

Draize test, rabbit, eye: 100 mg/24h Moderate Irritant.

Draize test, rabbit, skin: 29 mg/24h Moderate Irritant.

**Carcinogenicity:** Methyl Alcohol CAS#67-56-1 is not listed by IARC, NTP, ACGIH, or OSHA. Methyl Alcohol is listed by California Prop. 65 as a developmental carcinogen.

**CAS#88-89-1 Picric Acid: RTECS#: TJ7875000**

LD50 Oral: 200 mg/kg (rat)

LD50 Dermal: 461.54 mg/kg (estimate, calculation method)

LC50 Inhalation: 0.7708 mg/L (estimate, calculation method)

May cause skin sensitization.

**Carcinogenicity:** Picric Acid CAS#88-89-1 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

**Information on the likely routes of exposure:** Routes of entry anticipated: oral, dermal, inhalation, and eye.

**Epidemiology:** Not available.

**Teratogenicity:** Teratogenic effects have occurred in experimental animals (formaldehyde).

**Reproductive Effects:** May damage fertility or the unborn child.

**Developmental Effects:** Developmental effects have occurred in experimental animals (formaldehyde).

**Neurotoxicity:** Not available.

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

**Specific Target Organ Toxicity, Single Exposure:** Respiratory system, central nervous system, and optic nerve.

**Specific Target Organ Toxicity, Repeated Exposure:** Kidney, liver, heart, spleen, and blood.

**Symptoms associated with exposure:**

Corrosive material. Causes severe skin burns and eye damage. Risk of blindness. If ingested, severe burns of the mouth and throat, danger of perforation of esophagus and stomach, and stomach pain. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, flushing. Picric acid causes skin irritation and it may be absorbed through the skin. May cause itching, rashes, hives, redness, burning sensation, blistering. Picric acid has been shown to cause symptoms when absorbed through the skin; like those when ingested. Will cause eye irritation and may result in corneal injury leading to blindness. If swallowed, may cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting, diarrhea, dizziness, headache, and stomach irregularities. May affect behavior/central nervous system (vertigo, headache, stupor, tremor, convulsions), cardiovascular system, metabolism, kidneys/urinary system (anuria, oliguria, renal lesions, hemorrhagic nephritis), liver (acute hepatitis, jaundice). Prolonged or repeated skin contact may cause allergic or sensitization dermatitis. May cause conjunctivitis in the eyes and yellow staining of the skin and eyes. This is also called "yellow vision". May cause eye redness, tearing, watering, and blurred/double vision. If inhaled may cause respiratory tract irritation and coughing. May effect liver, kidney, eyes, skin, blood, central nervous system, cardiovascular system.

**The toxicological properties of this material have not been thoroughly investigated.**

## Section 12 - Ecological Information

**Ecotoxicity:** Do not release to the environment. Do not release to drains. Toxic to aquatic life. May cause long-term adverse effects in the aquatic environment.

**CAS#50-00-0 Formaldehyde:**

LC50, freshwater fish: 15 mg/L 96h (leuciscus idus)(golden orfe)

EC50, water flea: 20 mg/L 96h

EC50, water flea: 2 mg/L 48h

**CAS#64-19-7 Glacial Acetic Acid:**

LC50, freshwater fish: 88 mg/L 96h (pimephales promelas)(fathead minnow)

LC50, freshwater fish: 75 mg/L 96h (lepomis macrochirus)(bluegill)

EC50, water flea: 95 mg/L 24h

EC50, microtox: 8.8 mg/L 5min (photobacterium phosphoreum)

**CAS# 67-56-1 Methyl Alcohol:**

LC50, freshwater fish: 15400 mg/L 96h flow-through (lepomis macrochirus)(bluegill)

LC50, freshwater fish: 19000 mg/L 96h (oncorhynchus mykiss)(rainbow trout)

EC50, water flea: 18260 mg/L 96h semi-static (daphnia magna)

ErC50, algae: 22000 mg/L 96h static (pseudokirchneriella subcapitata)(green algae)

IC50, bacteria: >1000 mg/L 3h (activated sludge)

**Persistence and degradability:** Not available.

**Bio-accumulative potential:** Not available.

**Mobility:** Will likely be mobile in the environment due to its water solubility.

## Section 13 - Disposal Considerations

**DISPOSAL:** Dispose of in accordance with all federal, state, and local regulations.

## Section 14 - Transport Information

**DOT**

Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Acetic Acid & Formaldehyde)

UN3265

PG III

Hazard class 8

## Section 15 - Regulatory Information

### Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

## Section 16 - Additional Information

**SDS Creation Date:** 3/20/13

**Revision #1:** 1/3/14

**Revision #2:** 3/28/17

**Revision #3:** 9-19-19

**Revision #4:** 4-22-20

**Revision #5:** 9-14-23

**Revision #6:** 1-5-26

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