

Material Safety Data Sheet
Bouin's Fluid

Section 1 - Chemical Product and Company Identification

MSDS Name:

Bouin's Fluid

Catalog Numbers:

57211, 572401

Synonyms:

None Known.

Company Identification:

Richard Allan Scientific
4481 Campus Drive
Kalamazoo, MI 49008

Company Phone Number:

800-522-7270

Emergency Phone Number:

800-424-9300

CHEMTREC Phone Number, US:

(800) 424-9300

CHEMTREC Phone Number, Europe:

(202) 483-7616

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent	EINECS/ ELINCS	Hazard Symbols	Risk Phrases
7732-18-5	Water	83-84	231-791-2		
50-00-0	Formaldehyde	8-9	200-001-8	XI	43
64-19-7	Acetic acid	4-5	200-580-7		
67-56-1	Methyl alcohol	2-3	200-659-6	F T	11 23/24/25 39/23/24/25
88-89-1	Picric acid	<1.0	201-865-9		

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Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear yellow liquid

Danger! Causes irritation and possible burns by all routes of exposure. Contains formaldehyde which can cause cancer. May cause allergic respiratory and skin reaction. Harmful if swallowed, inhaled, or absorbed through the skin. This substance has caused adverse reproductive and fetal effects in animals. May cause liver and kidney damage.

Target Organs: Kidneys, Liver, Respiratory system, Eyes, Skin

Potential Health Effects

Eye:

Causes severe eye irritation and possible burns.

Skin:

Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes severe skin irritation and possible burns.

Ingestion:

Harmful if swallowed. May cause liver and kidney damage. Causes digestive tract irritation with possible burns.

Inhalation:

Harmful if inhaled. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. Causes respiratory tract irritation with possible burns.

Chronic:

Contains formaldehyde which can cause cancer in humans. There is sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare cancer in developed countries. There is limited evidence that formaldehyde causes cancer of the nasal cavity and paranasal sinuses and strong but not sufficient evidence for leukemia.

Section 4 - First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Ingestion:

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.

Inhalation:

Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Treat symptomatically and supportively.

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Section 5 - Fire Fighting Measures

General Information:

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Autoignition Temperature:

Not applicable.

Explosion Limits:

Lower: Not available Upper: Not available

Flash Point:

Not applicable.

NFPA Rating:

(estimated) Health: 3; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust. Provide ventilation.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use only with adequate ventilation.

Storage:

Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

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. See 29CFR 1910.1048 for regulatory requirements pertaining to all occupational exposures to formaldehyde, i.e., from formaldehyde gas, its solutions, and materials that release formaldehyde.

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Exposure Limits

Chemical Name:	ACGIH	NIOSH	OSHA
Water	None listed	None listed	None listed
Formaldehyde	0.3 ppm Ceiling	0.016 ppm TWA 20 ppm IDLH 0.1 ppm Ceiling (15 min)	0.75 ppm TWA; 2 ppm STEL; 0.5 ppm Action Level (Irritant and potential cancer hazard - see 29 CFR 1910.1048);
Acetic acid	10 ppm TWA; 15 ppm STEL	10 ppm TWA; 25 mg/m3 TWA 50 ppm IDLH	10 ppm TWA; 25 mg/m3 TWA;
Methyl alcohol	200 ppm TWA; 250 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	200 ppm TWA; 260 mg/m3 TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m3 TWA;
Picric acid	0.1 mg/m3 TWA	0.1 mg/m3 TWA 75 mg/m3 IDLH	0.1 mg/m3 TWA; prevent or reduce skin absorption;

OSHA Vacated PELs

Formaldehyde: 3 ppm TWA (unless specified in 1910.1048)
Acetic acid: 10 ppm TWA; 25 mg/m3 TWA
Methyl alcohol: 200 ppm TWA; 260 mg/m3 TWA
Picric acid: 0.1 mg/m3 TWA

Personal Protective Equipment

Eyes:

Wear chemical splash goggles.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: Clear yellow
Odor: Pungent odor
pH: No information found
Vapor Pressure: No information found
Vapor Density: No information found
Evaporation Rate: No information found

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Viscosity: No information found
Boiling Point: No information found
Freezing/Melting Point: No information found
Decomposition Temperature: No information found
Solubility in water: Completely soluble in water.
Specific Gravity/Density: No information found
Molecular Formula: Solution
Molecular Weight: No information found

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Excess heat, confined spaces

Incompatibilities with Other Materials

Strong oxidizing agents

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide

Hazardous Polymerization

Has not been reported.

Section 11 - Toxicological Information

RTECS:

CAS# 7732-18-5: ZC0110000
CAS# 50-00-0: LP8925000
CAS# 64-19-7: AF1225000
CAS# 67-56-1: PC1400000
CAS# 88-89-1: TJ7875000

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LD50/LC50:

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg.

CAS# 50-00-0:

Draize test, rabbit, eye: 750 ug/24H Severe

Draize test, rabbit, eye: 750 ug Severe

Draize test, rabbit, eye: 10 mg Severe

Draize test, rabbit, eye: 37% Severe

Draize test, rabbit, skin: 2 mg/24H Severe

Draize test, rabbit, skin: 50 mg/24H Moderate

Inhalation, mouse: LC50 = 454 mg/m³/4H

Inhalation, mouse: LC50 = 505 mg/m³/2H

Inhalation, rat: LC50 = 203 mg/m³

Inhalation, rat: LC50 = 578 mg/m³/2H

Inhalation, rat: LC50 = 250 ppm/2H

Oral, mouse: LD50 = 42 mg/kg

Oral, mouse: LD50 = 385 mg/kg

Oral, mouse: LD50 = 500 mg/kg

Oral, rat: LD50 = 100 mg/kg

Oral, rat: LD50 = 500 mg/kg

Skin, rabbit: LD50 = 270 uL/kg

Skin, rabbit: LD50 = 270 mg/kg.

CAS# 64-19-7:

Draize test, rabbit, skin: 50 mg/24H Mild

Inhalation, mouse: LC50 = 5620 ppm/1H

Oral, rat: LD50 = 3310 mg/kg

Skin, rabbit: LD50 = 1060 uL/kg.

CAS# 67-56-1:

Draize test, rabbit, eye: 40 mg Moderate

Draize test, rabbit, eye: 100 mg/24H Moderate

Draize test, rabbit, skin: 20 mg/24H Moderate

Inhalation, rabbit: LC50 = 81000 mg/m³/14H

Inhalation, rat: LC50 = 64000 ppm/4H

Oral, mouse: LD50 = 7300 mg/kg

Oral, rabbit: LD50 = 14200 mg/kg

Oral, rat: LD50 = 5600 mg/kg

Skin, rabbit: LD50 = 15800 mg/kg.

CAS# 88-89-1:

Oral, rat: LD50 = 200 mg/kg.

Carcinogenicity:

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 50-00-0

ACGIH: A2 - Suspected Human Carcinogen

California: carcinogen, initial date 1/1/88 (gas)

NTP: Suspect carcinogen

IARC: Group 1 carcinogen

CAS# 64-19-7: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 67-56-1: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 88-89-1: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

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Epidemiology:

In June 2004 an expert IARC group determined that there is now sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare cancer in developed countries.

Teratogenicity:

musculoskeletal, ipr-mouse TDLo=240 mg/kg.

Reproductive:

Formaldehyde effects on fertility: male index, itt-rat TDLo=400 mg/kg; post- implantation mortality, ims-mouse TDLo=259 mg/kg. Paternal Effects: spermatogenesis, orl-rat TDLo=200 mg/kg; testes/sperm duct/epididymis, ipr-rat TDLo=80 mg/kg.

Mutagenicity:

Formaldehyde DNA Damage: human fibroblast 100 umol/L DNA Inhibition: human cell types 210 umol/L
Unscheduled DNA Synthesis: rat cell types 50 umol/L Gene Mutation in Mammalian Cells: human lymphocyte 130 umol/L.

Neurotoxicity:

No information available.

Other:

See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity:

No information found

Environmental:

Bioconcentration: Studies on various fish have shown little potential for bioconcentration of substance. Soil Adsorption: log octanol/water partition coefficient=0.35(indicates low potential for soil adsorption). Substance has a high biological oxygen demand, and is expected to have significant potential to affect secondary waste treatment microorganisms.

Physical:

No information found

Other:

No information found

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P Series Wastes

None of the components are on this list.

RCRA U Series Wastes

CAS# 50-00-0: waste number U122. CAS# 67-56-1: waste number U154 (Ignitable waste).

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Section 14 - Transport Information

US DOT

Canadian TDG

Proper Shipping Name: CORROSIVE
LIQUID, ACIDIC,
ORGANIC, N.O.S
(Formaldehyde,
Acetic acid)

CORROSIVE
LIQUID, ACIDIC,
ORGANIC, N.O.S
(Formaldehyde,
Acetic acid)

Hazard Class: 8

8

UN Number: UN3265

UN3265

Packing Group: III

III

USA RQ: CAS# 50-00-0: 100 lb final RQ; 45.4 kg final RQ

USA RQ: CAS# 64-19-7: 5000 lb final RQ; 2270 kg final RQ

USA RQ: CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ

Section 15 - Regulatory Information

US Federal

TSCA

CAS# 7732-18-5 is listed on the TSCA Inventory.
CAS# 50-00-0 is listed on the TSCA Inventory.
CAS# 64-19-7 is listed on the TSCA Inventory.
CAS# 67-56-1 is listed on the TSCA Inventory.
CAS# 88-89-1 is listed on the TSCA Inventory.

Health and Safety Reporting List

None of the components are on this list.

Chemical Test Rules

None of the components are on this list.

TSCA Section 12b

None of the components are on this list.

TSCA Significant New Use Rule (SNUR)

None of the components are on this list.

CERCLA Hazardous Substances and corresponding RQs

CAS# 50-00-0: 100 lb final RQ; 45.4 kg final RQ
CAS# 64-19-7: 5000 lb final RQ; 2270 kg final RQ
CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 50-00-0: 500 lb TPQ

SARA Hazard Categories

CAS# 50-00-0: immediate, delayed.

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CAS# 64-19-7: immediate, delayed, fire.
CAS# 67-56-1: immediate, fire.
CAS# 88-89-1: immediate, delayed, fire, sudden release of pressure, reactive.

SARA Section 313

This material contains Formaldehyde (CAS# 50-00-0, 8-9%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

This material contains Methyl alcohol (CAS# 67-56-1, 2-3%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Picric acid is not at a high enough concentration to be reportable under Section 313.

Clean Air Act - Hazardous Air Pollutants (HAPs)

CAS# 50-00-0 is listed as a hazardous air pollutant (HAP).
CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).

Clean Air Act - Class 1 Ozone Depletors

None of the components are on this list.

Clean Air Act - Class 2 Ozone Depletors

None of the components are on this list.

Clean Water Act - Hazardous Substances

CAS# 50-00-0 is listed as a Hazardous Substance under the CWA.
CAS# 64-19-7 is listed as a Hazardous Substance under the CWA.

Clean Water Act - Priority Pollutants

None of the components are on this list.

Clean Water Act - Toxic Pollutants

None of the components are on this list.

OSHA - Highly Hazardous

CAS# 50-00-0 is considered highly hazardous by OSHA.

OSHA - Specifically Regulated Chemicals

CAS# 50-00-0 is a specifically regulated chemical by OSHA.

US State

State Right to Know

Formaldehyde can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

Acetic acid can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

Methyl alcohol can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

Picric acid can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Formaldehyde, a chemical known to the State of California to cause cancer.

California No Significant Risk Level

None of the components are on this list.

CAS# 50-00-0: 40 μ g/day NSRL

None of the components are on this list.

None of the components are on this list.

None of the components are on this list.

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European/International Regulations

European Labelling in Accordance with EC Directives:

Hazard Symbols: XN

Risk Phrases: R 45 May cause cancer.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

R 43 May cause sensitization by skin contact.

Safety Phrases: S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 28A After contact with skin, wash immediately with plenty of water.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

No information found

United Kingdom Occupational Exposure Limits

No information found

United Kingdom Maximum Exposure Limits

No information found

Canadian DSL/NDSL

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 50-00-0 is listed on Canada's DSL List.

CAS# 64-19-7 is listed on Canada's DSL List.

CAS# 67-56-1 is listed on Canada's DSL List.

CAS# 88-89-1 is listed on Canada's DSL List.

Canadian WHMIS Classifications

This product has a WHMIS classification of E, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 50-00-0 is listed on the Canadian Ingredient Disclosure List.

CAS# 64-19-7 is listed on the Canadian Ingredient Disclosure List.

CAS# 67-56-1 is listed on the Canadian Ingredient Disclosure List.

CAS# 88-89-1 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Other Information

Color information has been

MSDS Creation Date: December 9, 2005

Revision Date: September 30, 2008

Revisions were made in Sections:

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This MSDS is intended for review and guidance in the receipt, storage, handling, use and disposal of product purchased from us, and for no other purpose. Use this product only as directed and in accordance with applicable instructions and warnings provided with the product. Please consult your institution's policies regarding use of this product. If you have obtained this MSDS other than in connection with the supply of this product from us, this MSDS should be consulted for general information only, and should not be relied upon for any purpose. As with the use of all hazardous materials, you should in all instances follow the guidance of the MSDS provided or available with the specific product purchased.