



Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation Formaldehyde, 8% (v/v) (non-buffered), Histological Fixative

Product Number 3178

Other Identifying Product Numbers 3178-1, 3178-32, R3178000-20F

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company Ricca Chemical Company

Address 412 West Fork Drive

Arlington, TX 76012 USA

Telephone 888-467-4222

1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA) 800-424-9300

CHEMTREC (International) 1+ 703-527-3887

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SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

Hazard Class	Category	Hazard Statements	Precautionary Statements
Acute Toxicity - Inhalation (Vapors)	Category 4	H332	P261,P271,P304+P340,P312
Serious Eye Damage / Eye Irritation	Category 1	H318	P280,P305+P351+P338,P310
Skin Sensitization	Category 1A	H317	P261,P272,P280,P302+P352, P333+P313,P321,P362+P364,P501
Germ Cell Mutagenicity	Category 2	H341	P201,P202,P280,P308+P313,P405, P501
Carcinogenicity	Category 1A	H350	P201,P202,P280,P308+P313,P405, P501
Reproductive Toxicity	Category 1B	H360	P201,P202,P280,P308+P313,P405, P501
Specific Target Organ Toxicity - Single Exposure	Category 2	H371	P260,P264,P270,P308+P311, P405,P501

2.2. GHS Label Elements

Pictograms:



Signal Word: Danger

Hazard Statements:

NOTE: Hazard statements may be combined on labels to improve clarity and readability.

Hazard Number	Hazard Statement
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H332	Harmful if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H371	May cause damage to organs

Precautionary Statements:

NOTE: Precautionary statements may be combined or consolidated on labels to improve clarity and readability.

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Prevention

Precautionary Number	Precautionary Statement
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe fumes or mist.
P264	Wash hands, arms, and face 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 must not be allowed out of the workplace.
P280	Wear protective gloves and eye protection.

Response

Precautionary Number	Precautionary Statement
P302+P352	IF ON SKIN: Wash with plenty of water.
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 or doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice or attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Storage

Precautionary Number	Precautionary Statement
P405	Store locked up.

Disposal

Precautionary Number	Precautionary Statement
P501	Dispose of contents/container to suitable waste stream in accordance with local, state, federal, and international regulations.

2.3. Hazards not Otherwise Classified

No other hazards identified.

2.4. Ingredients of Unknown Acute Toxicity

This product does not contain any ingredients of unknown acute toxicity.

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SECTION 3: Composition / Information on Ingredients

3.1. Components of Mixture

Chemical Name (IUPAC)	Common Name and Synonyms	CAS Number	Weight%
water	Water	7732-18-5	95.58
formaldehyde	Formaldehyde; Formalin; Formic aldehyde; Methanal	50-00-0	3.14
methanol	Methyl Alcohol	67-56-1	1.27

SECTION 4: First-Aid Measures

4.1. Description of Necessary Measures

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May cause irritation with burning and stinging with possible damage to the cornea and conjunctiva.

Ingestion: Dilute immediately with water or milk. Induce vomiting. Call a physician.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Skin Contact: IF ON SKIN: Wash with plenty of water. May cause irritation and dermatitis.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Suspected of causing genetic defects Contains Formaldehyde, a suspected carcinogen. Irritating to the eyes, respiratory system and skin. May cause sensitization by inhalation or skin contact. May be fatal if ingested. If ingested, give large quantity of water and induce vomiting. Call a physician. Wash areas of contact with water. If inhaled, remove to fresh air. Contains a chemical known to the state of California to cause cancer. EYE CONTACT: May cause irritation with burning and stinging with possible damage to the cornea and conjunctiva. SKIN CONTACT: May cause irritation and dermatitis.

4.3. Immediate Medical Attention or Special Treatment Needed

Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Wash areas of contact with soap and water for at least 15 minutes. Call a physician if irritation develops. Dilute immediately with water or milk. Induce vomiting. Call a physician.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

5.2. Specific Hazards Arising from the Substance or Mixture in a Fire

Not considered to be a fire or explosion hazard.

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5.3. Special Protective Equipment and Precautions for Firefighters

Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Ventilate area of leak or spill. Absorb with suitable material and save for proper disposal. See Section 13.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Use with adequate ventilation. Store at room temperature

SECTION 8: Exposure Controls / Personal Protection

8.1. Exposure Limits

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U.S. OSHA - Permissible Exposure Limits (PEL) - Time Weighted Averages (TWA)

Chemical Name	CAS Number	Exposure Limit
Formaldehyde	50-00-0	0.75 ppm TWA
Methyl Alcohol	67-56-1	200 ppm TWA; 260 mg/m3 TWA

U.S. OSHA - Permissible Exposure Limits (PEL) - Ceiling Limits

No limits found.

U.S. OSHA - Permissible Exposure Limits (PEL) - Short Term Exposure Limits (STEL)

Chemical Name	CAS Number	Exposure Limit
Formaldehyde	50-00-0	2 ppm STEL (see 29 CFR 1910.1048)

U.S. OSHA - Specifically Regulated Chemicals

Chemical Name	CAS Number	Exposure Limit
Formaldehyde	50-00-0	0.5 ppm Action Level (See 29 CFR 1910.1048); 0.75 ppm TWA; 2 ppm STEL (15 min)

ACGIH - Threshold Limit Values - Ceilings (TLV-C)

No limits found.

ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)

Chemical Name	CAS Number	Exposure Limit
Formaldehyde	50-00-0	0.3 ppm STEL
Methyl Alcohol	67-56-1	250 ppm STEL

ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

Chemical Name	CAS Number	Exposure Limit
Formaldehyde	50-00-0	0.1 ppm TWA
Methyl Alcohol	67-56-1	200 ppm TWA

8.2. Engineering Controls

Use only outdoors or in a well-ventilated area. A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limit.

8.3. Individual Protective Measures and Personal Protective Equipment

Respiratory Protection: If the exposure limit is exceeded, a full facepiece respirator equipped with organic vapor cartridge should be worn.

Skin Protection: Chemical resistant gloves.



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Eye Protection: Safety glasses or goggles.

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Physical State:	liquid
Color:	Colorless
Odor:	Data not available.
Odor Threshold:	Data not available.
Melting/Freezing Point:	Approximately 0°C
Boiling Point/Range:	Approximately 100°C
Flammability:	Data not available.
Flammability/Explosive Limits:	Data not available.
Flash Point:	Not flammable
Auto-Ignition Temperature:	Data not available.
Decomposition Temperature:	Data not available.
pH:	Data not available.
Kinematic Viscosity:	Data not available.
Solubility:	miscible
Vapor Pressure:	Data not available.
Evaporation Rate:	Data not available.
Relative Density:	1.01
Relative Vapor Density:	Data not available.
Particle Characteristics:	Data not available.
Partition Coefficient n-octanol/water, log	Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

Strong oxidizing agents, alkalis, acids, phenols, urea.

10.4. Hazardous Decomposition Products

Nonhazardous polymerization may occur, forming paraformaldehyde, a white solid.

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SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Formaldehyde	50-00-0	Oral LD50 Rat 640 mg/kg (Source: ECHA)
Methyl Alcohol	67-56-1	Oral LD50 Acute Toxicity Estimate 100 mg/kg (Source: ECHA)

Acute Toxicity - Dermal Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Formaldehyde	50-00-0	Dermal LD50 Acute Toxicity Estimate 300 mg/kg (Source: ECHA)
Methyl Alcohol	67-56-1	Dermal LD50 Acute Toxicity Estimate 300 mg/kg (Source: ECHA)

Acute Toxicity - Inhalation Exposure:

Inhalation acute toxicity estimate (ATE, vapor): 14.9180 mg/L, 4 h(calculated)

Chemical Name	CAS Number	Toxicity
Formaldehyde	50-00-0	Inhalation LC50 Rat <463 ppm 4 h (Source: ECHA)
Methyl Alcohol	67-56-1	Inhalation LC50 Acute Toxicity Estimate 3 mg/L 4 h (Source: ECHA)

11.2 Carcinogenicity:

International Agency for Research on Cancer (IARC)

Chemical Name	CAS Number	Classification
Formaldehyde	50-00-0	Group 1 (Carcinogenic to Humans) - Monograph 100F [2012]; Monograph 88 [2006]; Monograph 62 [1995]; Supplement 7 [1987]

National Toxicology Program (NTP)

Chemical Name	CAS Number	Classification
Formaldehyde	50-00-0	Known Human Carcinogen

U.S. OSHA specifically regulated carcinogens

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Chemical Name	CAS Number	Classification
Formaldehyde	50-00-0	see 29 CFR 1910.1048

11.3 Additional Toxicology Information:

May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility or the unborn child. May cause damage to organs.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Chemical Name	CAS Number	Species	Exposure	Toxicity
Methyl Alcohol	67-56-1	Earthworm	Acute	LC50 48 h Eisenia foetida > 1 mg/cm2 [filter paper] (IUCLID)
Formaldehyde	50-00-0	Freshwater Fish	Acute	LC50 96 h Pimephales promelas 22.6 - 25.7 mg/L [flow-through] (EPA); LC50 96 h Lepomis macrochirus 1510 µg/L [static] (EPA); LC50 96 h Brachydanio rerio 41 mg/L [static] (IUCLID); LC50 96 h Oncorhynchus mykiss 0.032 - 0.226 mL/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 100 - 136 mg/L [static] (EPA); LC50 96 h Pimephales promelas 23.2 - 29.7 mg/L [static] (EPA)
Methyl Alcohol	67-56-1	Freshwater Fish	Acute	LC50 96 h Pimephales promelas 28200 mg/L [flow-through] (EPA); LC50 96 h Pimephales promelas > 100 mg/L [static] (EPA); LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static] (EPA); LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through] (EPA)
Formaldehyde	50-00-0	Water Flea	Acute	LC50 48 h Daphnia magna 2 mg/L (IUCLID); EC50 48 h Daphnia magna 11.3 - 18 mg/L [Static] (EPA)
Formaldehyde	50-00-0	Water Flea	Chronic	NOEC 21 d Daphnia magna >=6.4 mg/L [semi-static] (reproduction, ECHA_API)

12.2. Persistence and Degradability

Data not available.

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12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

SECTION 14: Transportation Information

14.1 Transportation by Land - Department of Transportation (DOT, United States of America)

Not regulated according to DOT regulations.

14.2 Transportation by Air - International Air Transport Association (IATA)

Not regulated according to IATA Dangerous Goods Regulations.



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14.3 Transportation of Dangerous Goods (TDG, Canada)

Not regulated according to TDG regulations.

SECTION 15: Regulatory Information

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15.01. Occupational Safety and Health Administration (OSHA) Hazards

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	2 ppm STEL (See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level (See 29 CFR 1910.1048); 0.75 ppm TWA (See 29 CFR 1910.1048)

15.02. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Chemical Name	CAS Number	RQ	TPQ
Formaldehyde	50-00-0	500 lb TPQ	100 lb EPCRA RQ

15.03. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	100 lb final RQ; 45.4 kg final RQ
Methyl Alcohol	67-56-1	5000 lb final RQ; 2270 kg final RQ

15.04. Superfund Amendments and Reauthorization Act (SARA) 313 Toxics Release Inventory (TRI)

Chemical Name	CAS Number	List	Regulatory Information
Formaldehyde	50-00-0	Emission Reporting	0.1 % de minimis concentration
Methyl Alcohol	67-56-1	Emission Reporting	1.0 % de minimis concentration

15.05. Massachusetts Right-to-Know Substance List

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	Carcinogen; Extraordinarily hazardous
Methyl Alcohol	67-56-1	Present

15.06. Pennsylvania Right-to-Know Hazardous Substances

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	Environmental hazard; Special hazardous substance
Methyl Alcohol	67-56-1	Environmental hazard

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15.07. New Jersey Worker and Community Right-to-Know Components

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	sn 0946
Methyl Alcohol	67-56-1	sn 1222

15.08. California Proposition 65

Chemical Name	CAS Number	Regulatory Information
Formaldehyde	50-00-0	carcinogen, 1/1/1988 (gas)
Formaldehyde	50-00-0	40 µg/day NSRL (gas)
Methyl Alcohol	67-56-1	developmental toxicity, 3/16/2012

15.09. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Chemical Name	CAS Number	List	Status
Formaldehyde	50-00-0	DSL	Present
Methyl Alcohol	67-56-1	DSL	Present
Methyl Alcohol	67-56-1	NDSL	"Present" As Alcohols, C1-3 [68475-56-9]
Water	7732-18-5	DSL	Present

15.10. United States of America Toxic Substances Control Act (TSCA) List

Chemical Name	CAS Number	Status
Formaldehyde	50-00-0	Present (ACTIVE)
Methyl Alcohol	67-56-1	Present (ACTIVE)
Water	7732-18-5	Present [XU] (ACTIVE)

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Chemical Name	CAS Number	List	Number
Formaldehyde	50-00-0	EINECS	200-001-8
Methyl Alcohol	67-56-1	EINECS	200-659-6
Water	7732-18-5	EINECS	231-791-2

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15.12. China - Inventory of Existing chemical Substances (IECSC)

Chemical Name	CAS Number	Status
Formaldehyde	50-00-0	Present [20022]
Methyl Alcohol	67-56-1	Present [16735]
Water	7732-18-5	Present [32224]

15.13. Korea - Existing Chemicals Inventory (KECI/KECL)

Chemical Name	CAS Number	List	Status
Formaldehyde	50-00-0	Annex 1	Present [KE-17074]
Methyl Alcohol	67-56-1	Annex 1	Present [KE-23193]
Water	7732-18-5	Annex 1	Present [KE-35400]

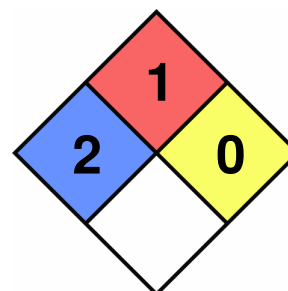
15.14. Japan - Existing and New Chemical Substances Inventory (ENCS)

Chemical Name	CAS Number	MITI No.
Formaldehyde	50-00-0	(2)-482
Methyl Alcohol	67-56-1	(2)-201
Water	7732-18-5	- (listed on Japanese Pharmacopoeia 8th Edition)

SECTION 16: Other Information

16.1 National Fire Protection Associate (NFPA) Rating

Health: 2
Flammability: 1
Reactivity: 0
Special Hazard:



16.2 Document Revision

Last Revision Date:

2026-05-24

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.