Material Safety Data Sheet
10% Neutral Buffered Formalin

ACC# 88082

Section 1 - Chemical Product and Company Identification

MSDS Name: 10% Neutral Buffered Formalin
Catalog Numbers: NC9638612, NC9638613, 046149, 23005155, 23005193, 23005500, 23011112, 23011120, 23023798, 23023799, 23026783, 23027274, 23028866, 23031092, 23032059, 23032060, 23032067, 23032069, 23035159, 23037238, 23037239, 23038528, 23045111, 23045112, 23045149, 23046785, 23047002, 23111005, 23111114, 23111123, 23245684, 23245685, 23253998, 23286200, 23305510, 23314028, 23314029, 23314033, 23314034, 23314035, 23314036, 23314037, 23314264, 23316154, 23316155, 23316156, 23426796, 23426797, 23427098, 245-684, 245-685, 253-998, 286-200, 305-510, 314025, 314026, 314028, 314029, 314030, 314033, 314034, 314035, 316154, 316155, 316156, 426796, 426797, 427098, 57011, 5701116, 57011A, 57011GA, 5900120
Synonyms: None.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
50-00-0	Formaldehyde	3.7	200-001-8
67-56-1	Methyl alcohol	1.5	200-659-6
7558-79-4	Sodium phosphate dibasic	<1.0	231-448-7
7558-80-7	Sodium phosphate monobasic	<1.0	231-449-2
7732-18-5	Deionized Water	Balance	231-791-2

Hazard Symbols: None listed.
Risk Phrases: None listed.

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: > 200 deg F. May cause eye irritation and transient injury. Harmful if absorbed through the skin. May cause pulmonary edema. May cause reproductive and fetal effects. May cause lung damage. Contains formaldehyde. Potential cancer hazard. Harmful if inhaled. **Warning!** May cause severe skin irritation. May cause respiratory tract irritation. May cause allergic skin and respiratory reaction.
Target Organs: Lungs, skin.

Potential Health Effects

Eye: May cause severe eye irritation. May result in corneal injury.
Skin: May cause skin irritation. May cause severe skin irritation. Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. In severe cases may produce blistering, scaling and cracking.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. Ingestion may cause violent vomiting and diarrhea leading to collapse. May cause systemic toxicity including central nervous system depression, convulsions, coma, and possible death due to respiratory failure.
Inhalation: Harmful if inhaled. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. May cause pulmonary edema and severe respiratory disturbances.
Chronic: Prolonged or repeated skin contact may cause dermatitis. May cause respiratory tract cancer. May cause fetal effects. Formaldehyde has been associated with nasal and nasopharyngeal cancers. Repeated exposure may cause skin discoloration and thickening and nail decay.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.
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. Destroy contaminated shoes.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
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.
Antidote: None reported.

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. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Use water spray to keep fire-exposed containers cool.
Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.
Flash Point: > 200e deg F (> 93.33 deg C)
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Urea based materials are available which can be used to bind the formaldehyde forming a polymer.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Do not ingest or inhale.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

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.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Formaldehyde	0.3 ppm Ceiling	0.016 ppm TWA 20 ppm IDLH	0.75 ppm TWA; 2 ppm STEL; 0.5 ppm Action Level; Irritant and potential cancer ha zard (29 CFR 1910.1048)
Methyl alcohol	200 ppm TWA; 250 ppm STEL; skin - potential for cutaneous absorption	200 ppm TWA; 260 mg/m3 TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m3 TWA
Sodium phosphate dibasic	none listed	none listed	none listed
Sodium phosphate monobasic	none listed	none listed	none listed
Deionized Water	none listed	none listed	none listed

OSHA Vacated PELs: Formaldehyde: 3 ppm TWA (unless specified in 1910.1048) Methyl alcohol: 200 ppm TWA; 260 mg/m3 TWA Sodium phosphate dibasic: No OSHA Vacated PELs are listed for this chemical. Sodium phosphate monobasic: No OSHA Vacated PELs are listed for this chemical. Deionized Water: No OSHA Vacated PELs are listed for this chemical.
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: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless
Odor: Characteristic odor.
pH: 7.0 +/-0.1@25C
Vapor Pressure: Not available.
Vapor Density: >1 (Air= 1)
Evaporation Rate: Similar to water.
Viscosity: Not available.
Boiling Point: 102 deg C
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: Completely soluble in water.
Specific Gravity/Density:1.0 (Water=1)
Molecular Formula: Not applicable.
Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Polymerization at low temperatures may occur.
Conditions to Avoid: Polymerization at low temperatures may occur., incompatible materials, ignition sources, acids, reducing agents, oxidizers, bases.
Incompatibilities with Other Materials: Hydrogen peroxide, magnesium carbonate hydroxide, nitrogen dioxide, nitromethane, peroxyformic acid, perchloric acid + aniline, performic acid, phenol, potassium permanganate. Substance reacts with hydrogen chloride in humid air to produce bischloromethyl ether (carcinogen).
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, oxides of carbon.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 50-00-0: LP8925000
CAS# 67-56-1: PC1400000
CAS# 7558-79-4: WC4500000
CAS# 7558-80-7: WA1900000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 50-00-0:
Draize test, rabbit, eye: 37% Severe;
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, skin: 2 mg/24H Severe;
Draize test, rabbit, skin: 50 mg/24H Moderate;
Inhalation, mouse: LC50 = 505 mg/m3/2H;

Inhalation, mouse: LC50 = 454 gm/m3/4H;
Inhalation, rat: LC50 = 578 mg/m3/2H;
Inhalation, rat: LC50 = 250 ppm/2H;
Inhalation, rat: LC50 = 203 mg/m3;
Oral, mouse: LD50 = 385 mg/kg;
Oral, mouse: LD50 = 500 mg/kg;
Oral, mouse: LD50 = 42 mg/kg;
Oral, rat: LD50 = 500 mg/kg;
Oral, rat: LD50 = 100 mg/kg;
Skin, rabbit: LD50 = 270 mg/kg;
Skin, rabbit: LD50 = 270 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# 7558-79-4:
Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, skin: 500 mg/24H Mild;
Oral, rat: LD50 = 17 gm/kg;

CAS# 7558-80-7:
Draize test, rabbit, eye: 150 mg Mild;
Oral, rat: LD50 = 8290 mg/kg;

CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg;

Carcinogenicity:
CAS# 50-00-0:
ACGIH: A2 - Suspected Human Carcinogen
California: carcinogen; initial date 1/1/88
NIOSH: potential occupational carcinogen
NTP: Suspect carcinogen
OSHA: Possible Select carcinogen
IARC: Group 2A carcinogen CAS# 67-56-1: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7558-79-4: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7558-80-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Other Studies: Please refer to RTECS (LP8925000) for additional data.

Section 12 - Ecological Information

Ecotoxicity: No data available. Bluegill LC50=100 ug/L/96H Lake trout LC50=100 uL/L/96H Atlantic salmon LC50=173 uL/L/96H Catfish (fresh water) TLm=32 ppm/24H Flounder (salt water) TLm=100-330 ppm/48H Fathead minnow LC50=10-100 uL/L/96H Rainbow trout LC50= 168mg/L/48H Zebrafish LC50=41 mg/L/96H Water flea LC50=52 mg/L/24H
Environmental: Persistence/Degradation: Substance is biodegradable in aerobic and anaerobic conditions. 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.
Physical: Substance photolyzes and reacts with hydroxyl radicals. The half-life (in sunlight) is a few hours. Without light, substance reacts with nitrate radicals.
Other: None.

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 Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: CAS# 50-00-0: waste number U122. CAS# 67-56-1: waste number U154 (Ignitable waste).

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	AVIATION REGULATED LIQUID, N.O.S.				No information available.
Hazard Class:	9				
UN Number:	UN3334				
Packing Group:					

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 50-00-0 is listed on the TSCA inventory.
CAS# 67-56-1 is listed on the TSCA inventory.
CAS# 7558-79-4 is listed on the TSCA inventory.
CAS# 7558-80-7 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b

None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA

CERCLA Hazardous Substances and corresponding RQs
CAS# 50-00-0: 100 lb final RQ; 45.4 kg final RQ CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ CAS# 7558-79-4: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 50-00-0: 500 lb TPQ
SARA Codes
CAS # 50-00-0: acute, chronic. CAS # 67-56-1: acute, flammable.
Section 313
This material contains Formaldehyde (CAS# 50-00-0, 3 7%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373. This material contains Methyl alcohol (CAS# 67-56-1, 1 5%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 50-00-0 is listed as a hazardous air pollutant (HAP). CAS# 67-56-1 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 50-00-0 is listed as a Hazardous Substance under the CWA. CAS# 7558-79-4 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 50-00-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
CAS# 67-56-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
CAS# 7558-79-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.
CAS# 7558-80-7 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act: WARNING: This product contains Formaldehyde, a chemical known to the state of California to cause cancer. California No Significant Risk Level: CAS# 50-00-0: 40 ug/day NSRL

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
Not available.
Risk Phrases:

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37 Wear suitable protective clothing and gloves.
S 44 If you feel unwell, seek medical advice (show the label where possible).

S 51 Use only in well-ventilated areas.

WGK (Water Danger/Protection)
CAS# 50-00-0: 2
CAS# 67-56-1: 1
CAS# 7558-79-4: 1
CAS# 7558-80-7: 1
CAS# 7732-18-5: No information available.
Canada - DSL/NDSL
CAS# 50-00-0 is listed on Canada's DSL List.
CAS# 67-56-1 is listed on Canada's DSL List.
CAS# 7558-79-4 is listed on Canada's DSL List.
CAS# 7558-80-7 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of D2B.
Canadian Ingredient Disclosure List
CAS# 50-00-0 is listed on the Canadian Ingredient Disclosure List.
CAS# 67-56-1 is listed on the Canadian Ingredient Disclosure List.
Exposure Limits
CAS# 50-00-0: OEL-ARAB Republic of Egypt:TWA 2 ppm (3 mg/m3) OEL-AU STRALIA:TWA 1 ppm (1.5 mg/m3);STEL 2 ppm (3 mg/m3);CAR OEL-BELGIUM:TW A 1 ppm (1.2 mg/m3);STEL 2 ppm (2.5 mg/m3);CAR OEL-CZECHOSLOVAKIA:TWA 0.5 mg/m3;STEL 1 mg/m3 OEL-DENMARK:STEL 0.3 ppm (0.4 mg/m3);Carcinog en OEL-FINLAND:STEL 1 ppm (1.3 mg/m3);Skin OEL-FRANCE:STEL 2 ppm (3 mg/m3) OEL-GERMANY:TWA 0.5 ppm (0.6 mg/m3);Carcinogen OEL-HUNGARY:ST EL 0.6 mg/m3;Carcinogen OEL-JAPAN:TWA 0.5 ppm (0.61 mg/m3);Carcinogen OEL-THE NETHERLANDS:TWA 1 ppm (1.5 mg/m3);STEL 2 ppm (3 mg/m3) OEL-THE PHILIPPINES:TWA 5 ppm (6 mg/m3) OEL-POLAND:TWA 2 mg/m3 OEL-RUSSI A:TWA 0.5 ppm;STEL 0.5 mg/m3;Skin OEL-SWEDEN:TWA 0.5 ppm (0.6 mg/m3); STEL 1 ppm (1. mg/m3) OEL-SWITZERLAND:TWA 0.5 ppm (0.6 mg/m3);STEL 1 pp (1.2 mg/m3) OEL-THAILAND:TWA 3 ppm;STEL 5 ppm OEL-TURKEY:TWA 5 pp m (6 mg/m3) OEL-UNITED KINGDOM:TWA 2 ppm (2.5 mg/m3);STEL 2 ppm (2.5 mg/m3) OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV
CAS# 67-56-1: OEL-ARAB Republic of Egypt:TWA 200 ppm (260 mg/m3);Ski n OEL-AUSTRALIA:TWA 200 ppm (260 mg/m3);STEL 250 ppm;Skin OEL-BELGIU M:TWA 200 ppm (262 mg/m3);STEL 250 ppm;Skin OEL-CZECHOSLOVAKIA:TWA 10 0 mg/m3;STEL 500 mg/m3 OEL-DENMARK:TWA 200 ppm (260 mg/m3);Skin OEL-FINLAND:TWA 200 ppm (260 mg/m3);STEL 250 ppm;Skin OEL-FRANCE:TWA 200 ppm (260 mg/m3);STEL 1000 ppm (1300 mg/m3) OEL-GERMANY:TWA 200 ppm (2 60 mg/m3);Skin OEL-HUNGARY:TWA 50 mg/m3;STEL 100 mg/m3;Skin JAN9 OEL -JAPAN:TWA 200 ppm (260 mg/m3);Skin OEL-THE NETHERLANDS:TWA 200 ppm (260 mg/m3);Skin OEL-THE PHILIPPINES:TWA 200 ppm (260 mg/m3) OEL-POLA ND:TWA 100 mg/m3 OEL-RUSSIA:TWA 200 ppm;STEL 5 mg/m3;Skin OEL-SWEDEN :TWA 200 ppm (250 mg/m3);STEL 250 ppm (350 mg/m3);Skin OEL-SWITZERLAN D:TWA 200 ppm (260 mg/m3);STEL 400 ppm;Skin OEL-THAILAND:TWA 200 ppm (260 mg/m3) OEL-TURKEY:TWA 200 ppm (260 mg/m3) OEL-UNITED KINGDOM:TW A 200 ppm (260 mg/m3);STEL 250 ppm;Skin OEL IN BULGARIA, COLOMBIA, JO RDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM ch eck ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 6/07/1999
Revision #5 Date: 9/16/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.