Safety Data Sheet

10% Neutral Buffered Formalin

Section 1. Identification

Product Identifier	10% Neutral Buffered Formalin
Synonyms	MCHEM110; MCHEM111; MCHEMPF8OZN; MCHEMPF20; MCHEMPF20N; MCHEMPF40; MCHEMPF40N; MCHEMPF60; MCHEMPF60N; MCHEMPF90; MCHEMPF90N; MCHEMPF120; MCHEMPF120N; MCHEMPF180; MCHEMPF180N; MCHEMPF250; MCHEMPF500; MCHEMPF500N; MCHEMPF940; MCHEMPF1000N; MSD_SDS0203
Manufacturer Stock Numbers	MCHEM110; MCHEM111; MCHEMPF8OZN; MCHEMPF20; MCHEMPF20N; MCHEMPF40; MCHEMPF40N; MCHEMPF60; MCHEMPF60N; MCHEMPF90; MCHEMPF90N; MCHEMPF120; MCHEMPF120N; MCHEMPF180; MCHEMPF180N; MCHEMPF250; MCHEMPF500; MCHEMPF500N; MCHEMPF940; MCHEMPF1000N
Recommended use	Tissue Fixation. For professional use only.
Uses advised against	N/A
Manufacturer Contact Address	Medline 3 Lakes Drive Northfield, IL, 60093 USA

Phone	Emergency Phone	Fax
(800) 633-5463	(800) 424-9300 CHEMTREC	(847) 643-4436

Website
www.Medline.com

Section 2. Hazards Identification

Classification	CARCINOGENICITY - Category 2 SENSITIZATION - SKIN - Category 1

SERIOUS EYE DAMAGE /EYE IRRITATION - Category 1
SKIN CORROSION/IRRITATION - Category 2
SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) - Category 1

Signal Word Danger

Pictogram

Hazard Statements

Causes damage to organs
Causes serious eye damage
Causes skin irritation
May cause an allergic skin reaction
Suspected of causing cancer

Precautionary Statements

Response

If exposed or concerned: Get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If on skin: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Immediately call a poison center or doctor.
In case of fire: Use appropriate media for extinction.
Specific treatment (see Section 4).
Take off contaminated clothing and wash it before reuse.

Prevention

Contaminated work clothing must not be allowed out of the workplace.
Do not breathe mist, spray, vapors, gas.
Do not eat, drink or smoke when using this product.
Do not handle until all safety precautions have been read and understood.
Keep container tightly closed.
Obtain special instructions before use.
Wash hands, forearms, and exposed areas thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Storage

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal

Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.

Ingredients of unknown toxicity

0%

Hazards not Otherwise Classified

N.A.

Section 3. Ingredients

CAS	Ingredient Name	Weight %
50-00-0	Formaldehyde	3% - 4%
67-56-1	Methyl alcohol	1% - 1.5%

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

Section 4. First-Aid Measures

General:	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
Inhalation:	When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
Skin contact:	Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash contaminated clothing before reuse. Wash with plenty of soap and water. Obtain medical attention if irritation develops or persists.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Ingestion:	Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.
Most important symptoms and effects both acute & delayed:	General: Causes serious eye damage. Causes skin irritation. Inhalation: Harmful if inhaled. Skin contact: Causes skin irritation. May cause an allergic skin reaction. Eye contact: Causes serious eye damage. Ingestion: Ingestion is likely to be harmful or have adverse effects. Chronic symptoms: May cause cancer. Causes damage to organs. May produce an allergic reaction.
Indication of any immediate medical attention and special treatment needed:	If exposed or concerned, get medical advice and attention.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media	Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2).
Unsuitable Extinguishing Media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
Special hazards arising from the substance or mixture:	Fire hazard: Not considered flammable but will burn at high temperatures (>93°C, 199.9°F).

	Explosion hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Reactivity: Strong oxidizing agents, caustics, strong alkalies, isocyanates, anhydrides, oxides, and inorganic acids. Formaldehyde reacts with hydrochloric acid to form the potent carcinogen, bis-chloromethyl ether. Formaldehyde reacts with nitrogen dioxide, nitromethane, perchloric acid and aniline, or peroxyformic acid to yield explosive compounds. A violent reaction occurs when formaldehyde is mixed with strong oxidizers.
Advice for firefighters:	Precautionary measures fire: Exercise caution when fighting any chemical fire. Firefighting instructions: Use water spray or fog for cooling exposed containers. Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Hazardous Combustion Products: Carbon oxides (CO, CO2). Formaldehyde. Oxygen from the air can oxidize formaldehyde to formic acid, especially when heated. Formic acid is corrosive.
Reference to other sections:	Refer to section 9 for flammability properties.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:	Do NOT breathe (vapor, mist, gas). Do not get in eyes, on skin, or on clothing.
For non-emergency personnel:	Protective equipment: Use appropriate personal protection equipment (PPE). Emergency procedures: Evacuate unnecessary personnel.
For emergency personnel:	Protective equipment: Use appropriate personal protection equipment (PPE). Emergency procedures: Ventilate area.
Environmental precautions:	Prevent entry to sewers and public waters.
Methods and material for containment and cleaning up:	For containment: Absorb and/or contain spill with inert material, then place in suitable container. Methods for cleaning up: Clear up spills immediately and dispose of waste safely.
Reference to other sections:	See heading 8, exposure controls and personal protection.

Section 7. Handling and Storage

Precautions for safe handling:	Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

Storage conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store locked up.

Incompatible materials: Strong oxidizing agents, caustics, strong alkalies, isocyanates, anhydrides, oxides, and inorganic acids. Formaldehyde reacts with hydrochloric acid to form the potent carcinogen, bis-chloromethyl ether. Formaldehyde reacts with nitrogen dioxide, nitromethane, perchloric acid and aniline, or peroxyformic acid to yield explosive compounds. A violent reaction occurs when formaldehyde is mixed with strong oxidizers.

Specific end use(s): Tissue fixation. For professional use only.

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Ingredient Name	ACGIH TLV	OSHA PEL	STEL
Formaldehyde	Ceiling: 0.3 ppm	TWA: 0.75 ppm	STEL: 2 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm	TWA: 200 ppm	N/A

Personal Protective Equipment: Goggles, Gloves, Apron, Face Shield, Respirator

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide sufficient ventilation to keep vapors below permissible exposure limit. Alarm detectors should be used when toxic s gases may be released. Ensure all national/local regulations are observed.

Personal protective equipment: Safety glasses. Face shield. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.

Materials for protective clothing: Material impervious to formaldehyde is needed if the employee handles formaldehyde solutions of 1 percent or more. Other employees may also require protective clothing or equipment to prevent dermatitis.

Hand protection: Wear chemically resistant protective gloves.

Eye protection: Chemical safety goggles.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: Use NIOSH-approved full facepiece negative pressure respirators equipped with approved cartridges or canisters within the use limitations of these devices. (Present restrictions on cartridges and canisters do not permit them to be used for a full workshift.) In all other situations, use positive pressure respirators such as the positive-pressure air purifying respirator or the self-contained breathing apparatus (SCBA). If you use a negative pressure respirator, your employer must provide you with fit testing of the respirator at least once a year.

Other information: When using, do not eat, drink or smoke.

Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Clear, colorless
Odor	Formaldehyde
Odor Threshold	0.1 ppm formaldehyde
Solubility	Soluble in water
Partition coefficient Water/n-octanol	N.A.
VOC%	N/A
Viscosity	N.A.
Specific Gravity	1.02
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	93.3°C/199.9°F
FP Method	N.A.
pH	6.7 - 7.2
Melting Point	-92°C/-133°F
Boiling Point	100°C/212°F
Boiling Range	N.A.
LEL	N/A
UEL	N/A
Evaporation Rate	N.A.
Flammability	N.A.
Decomposition Temperature	N.A.
Auto-ignition Temperature	N.A.
Vapor Pressure	N.A.
Vapor Density	1.04

Section 10. Stability and Reactivity

Reactivity:	Strong oxidizing agents, caustics, strong alkalies, isocyanates, anhydrides, oxides, and inorganic acids. Formaldehyde reacts with hydrochloric acid to form the potent carcinogen, bis-chloromethyl ether. Formaldehyde reacts with nitrogen dioxide, nitromethane, perchloric acid and aniline, or peroxyformic acid to yield explosive compounds. A violent reaction occurs when formaldehyde is mixed with strong oxidizers.
Chemical stability:	Formaldehyde solutions may self-polymerize to form paraformaldehyde which precipitates.
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Direct sunlight. Extremely high or low temperatures.
Incompatible materials:	Strong acids. Strong bases. Strong oxidizers.
Hazardous decomposition products:	Carbon oxides (CO, CO2). Formaldehyde. Oxygen from the air can oxidize formaldehyde to formic acid, especially when heated. Formic acid is corrosive.

Section 11. Toxicological Information

Acute toxicity:	Not classified.
Skin corrosion/irritation:	Causes skin irritation (pH: 6.7 - 7.2).
Serious eye damage/irritation:	Causes serious eye damage (pH: 6.7 - 7.2).
Respiratory or skin sensitization:	May cause an allergic skin reaction.
Germ cell mutagenicity:	Not classified.
Teratogenicity:	Teratogenic effects have occurred in experimental animals.
Carcinogenicity:	Suspected of causing cancer.
Specific target organ toxicity (repeated exposure):	Not classified.
Reproductive toxicity:	Not classified.
Specific target organ toxicity (single exposure):	Causes damage to organs.
Aspiration hazard:	Not classified.
Symptoms/injuries after inhalation:	Harmful if inhaled.
Symptoms/injuries after skin contact:	Causes skin irritation. May cause an allergic skin reaction.
Symptoms/injuries after eye contact:	Causes serious eye damage.
Symptoms/injuries after ingestion:	Ingestion is likely to be harmful or have adverse effects.
Chronic symptoms:	May cause cancer. Causes damage to organs. May produce an allergic reaction.
Information on toxicological effects:	Formaldehyde CAS-No. 50-00-0 LD50 oral rat: 800 mg/kg ATE (gases): 250 ppm/4h Methyl alcohol CAS-No. 67-56-1 LC50 inhalation rat (mg/l): 83.2 mg/l (Exposure time: 4 h) ATE (oral): 100 mg/kg ATE (dermal): 300 mg/kg
Carcinogenicity:	Formaldehyde CAS-No. 50-00-0 IARC group: 1 NTP Status: Known human carcinogen

Section 12. Ecological Information

Ecotoxicity:	Formaldehyde CAS-No. 50-00-0 LC50 fish 1: 22.6 - 25.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) EC50 Daphnia 1: 2 mg/l (Exposure time: 48 h - Species: Daphnia magna) LC50 fish 2: 1510 µg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static]) EC50 Daphnia 2: 11.3 - 18 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

	Methyl alcohol CAS-No. 67-56-1 LC50 fish 1: 28200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) LC50 fish 2: > 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
Persistence and degradability:	N.A.
Bioaccumulative potential:	N.A.
Mobility in soil:	N.A.
Other adverse effects:	Other information: Avoid release to the environment.

Section 13. Disposal

Waste disposal recommendations:	Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Section 14. Transport Information

UN Number	N/A
UN Proper Shipping Name	Not Regulated
DOT Classification	Not Regulated
Packing Group	Not Regulated
IATA:	Not Regulated
IMDG:	Not Regulated

Section 15. Regulatory Information

SARA 311/312:	Refer to Section 2 of the SDS.
SARA 302:	Formaldehyde.
SARA 304:	Formaldehyde.
SARA 313:	Formaldehyde.
SARA 313:	Methanol.
TSCA:	All components are listed or exempt.
CERCLA Hazardous Substance List:	Formaldehyde. Methanol.
Clean Air Act (CAA) Section 112, 112 (r):	Formaldehyde.
New Jersey Right to Know Components:	FORMALDEHYDE. METHYL ALCOHOL.
Pennsylvania Right to Know Components:	FORMALDEHYDE. METHANOL.
Rhode Island Right to Know Components:	formaldehyde solution. methyl alcohol.
Massachusetts Right to Know Components:	FORMALDEHYDE. METHYL ALCOHOL.

Section 16. Other Information

Revision Date	10/3/2022
Legend	N.A. - Not Applicable N.E. - Not Established N.D. - Not Determined
HMIS (U.S.A.): Health Hazard	3
HMIS (U.S.A.): Flammability	1
HMIS (U.S.A.): Physical	0
National Fire Protection Association (U.S.A): Health Hazard	3
National Fire Protection Association (U.S.A): Fire Hazard	1
National Fire Protection Association (U.S.A): Reactivity	0
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