SECTION 1: IDENTIFICATION

Product: Z-Fix
Product number: 170, 174, 175, 179, 622, 626, 629
Synonyms: Buffered zinc formalin solution
Recommended use: Laboratory chemical

Company

Cancer Diagnostics-Anatech Division	24-hour Transportation Emergency	800.424.9300 CHEMTREC
1020 Harts Lake Road	Product Technical Information	800.262.8324, M-F, 8 AM-5 PM, ET
Battle Creek, MI 49037, USA	Supplier General Contact	800.262.8324, M-F, 8 AM-5 PM, ET

SECTION 2: HAZARD(S) IDENTIFICATION

Classification of substance

Acute toxicity, oral (Category 3)
Acute toxicity, dermal (Category 3)
Acute toxicity, inhalation (Category 2)
Skin corrosion/irritation (Category 1)
Eye damage/irritation (Category 1)
Sensitization-respiratory (Category 1)
Sensitization-skin (Category 1)
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1)
Toxic to reproduction (Category 1)
Specific target organ toxicity, single exposure (STOT-SE) (Category 1)
Specific target organ toxicity, single exposure (STOT-SE) (Category 3, respiratory tract irritation)

Signal word

Danger

Hazard statement

Toxic if swallowed.
Toxic in contact with skin.
Fatal if inhaled.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing genetic defects.
May cause cancer.
May damage fertility or the unborn child.
Causes damage to organs (general toxicant) (STOT-SE).
May cause respiratory irritation (STOT-SE).

Pictogram

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash exposed areas thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe mist/vapors/spray.
Use only in a well-ventilated area.
In case of inadequate ventilation wear respiratory protection.
Contaminated work clothing must not be allowed out of the workplace.

Response
If in eyes: Immediately call a poison center or doctor. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed: Immediately call a poison center or doctor. Rinse mouth. Do NOT induce vomiting.
If exposed/concerned/do not feel well: Call poison center or get medical advice/attention.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If on skin/hair: Immediately remove all contaminated clothing. Rinse/shower skin with water.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
Specific treatment: See Section 4 of this SDS.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal
Dispose of contents/containers in accordance with governmental regulations.

Hazards not otherwise classified
None as defined under 29 CFR 1900.1200

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical name	CAS#	Concentration (w/w)
Formaldehyde	50-00-0	3.7%
Methanol	67-56-1	1.1%
Buffer (Not hazardous)	*	*

*As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals in accordance with applicable provisions of paragraph (i).

SECTION 4: FIRST-AID MEASURES

Description of first-aid measures

Inhalation	Remove victim to fresh air if coughing or difficulty in breathing is experienced. Consult a physician if symptoms persist or worsen. Administer oxygen or artificial respiration as needed. Do not use mouth-to-mouth method if person inhaled formaldehyde vapors.
Eye	Flush eyes for at least 15 minutes in an eyewash station. Consult a physician.
Skin	Remove contaminated clothing, including footwear; wash before reuse or discard. For minor exposure, wash affected area with water and mild soap, rinsing thoroughly. In cases of prolonged, repeated or extensive exposure, rinse affected area or entire body for at least 15 minutes. Consult a physician.
Ingestion	Call a poison center immediately.

Important symptoms, acute and delayed

Prolonged/repeated contact can cause irritation/sensitization.
Ingestion is likely to cause adverse effects on gastrointestinal tract.
Contact of liquid with eyes will cause watering and redness.
Inhalation may cause coughing and difficulty in breathing.

Recommendations for immediate medical care and special treatment

See listed first-aid procedures. No information available for special treatment. Treat according to symptoms.
Product is a solution used to preserve tissue specimens for pathology.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable and unsuitable extinguishing media

Use water spray, alcohol resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the product

Hazardous products of combustion: carbon monoxide and carbon dioxide.

Special protective equipment/precautions for fire-fighters

Fire-fighters may wear self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection.
Ensure adequate ventilation.
Avoid inhalation of vapors.
Avoid contact with skin and eyes.

Protective equipment

Wear protective gloves, impermeable aprons and splash-proof goggles.
Wear respirator protection designed for formaldehyde exposure.

Emergency procedures

Follow information listed in this section.

Methods and materials for containment and cleanup

Contain and soak up spill with inert absorbent material.
Discard absorbents and other contaminated solids in a suitable trash receptacle.
Dispose absorbents and other contaminated solids as a hazardous waste.
Wash contaminated area with soap and water.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes.
Avoid inhalation of vapors.
Wear protective gloves, impermeable aprons and splash-proof goggles.

Conditions for safe storage including incompatibilities

Keep containers tightly closed.
Store locked up.
Store at room temperature.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure limits

Chemical name	CAS#	Exposure Limit	Value
Formaldehyde	50-00-0	OSHA PEL OSHA STEL ACGIH (Ceiling)	0.75 ppm 2 ppm 0.3 ppm
Methanol	67-56-1	OSHA PEL ACGIH STEL ACGIH TWA	200 ppm 250 ppm 200 ppm
Buffer	Trade secret	None established	

Appropriate engineering controls

Good general room ventilation should be provided so that exposure limits are not exceeded.
Provide exhaust ventilation to control vapors.

Personal protective measures

Respiratory protection	When risk assessment shows one is necessary, wear respirator with formaldehyde cartridge.
Eye protection	Use splash-proof goggles. Wear face shield if splashing hazard exists. An eyewash station must be nearby, no more than 10 seconds away.
Skin protection	Wear nitrile or chemical resistant gloves. Do not use latex surgical gloves for protection. Safety shower must be nearby, no more than 10 seconds away.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	**Value**
Appearance	Clear, colorless liquid
Odor	Pungent (distinct formaldehyde) odor
Odor threshold	No data available
pH	5.6-5.8
Melting point/freezing point	No information available
Initial boiling point and boiling range	207°F (97°C)
Flash point	>200°F (>93°C) closed cup
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper/lower flammability or explosive limits	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	1.001 at 20°C
Solubility(ies)	Complete in water
Partition coefficient: n-octanol/water	No information available
Auto-ignition temperature	No information available
Decomposition	No information available
Viscosity	No information available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Non-reactive under normal conditions of use, storage and transport.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reaction

The product is stable under normal conditions.

Conditions to avoid

Heating this product will give off high concentrations of irritating, potentially life-threatening, vapors.

Incompatible materials

Strong alkalis, strong acids, oxidizing agents, reducing agents.

Hazardous decomposition products

No hazardous decomposition products if stored and handled as indicated.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely routes of exposure

Skin, eye, inhalation.

Symptoms related to physical, chemical and toxicological characteristics

The following statements are based on data for 37% formaldehyde. Product contains approximately 3.7% formaldehyde.

Eye, skin, respiratory contact causes irritation.
May cause allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulty when inhaled.
Suspected of causing genetic defects.
Known to be a human carcinogen.

Delayed and immediate effects

See symptoms listed above.

Chronic effects from short and long-term exposure

Prolonged inhalation may be harmful. See symptoms listed above.

Numerical measures of toxicity

The following data are for 37% formaldehyde. Product contains approximately 3.7% formaldehyde.

Acute toxicity, oral (rat)	LD_{50}=100 mg/kg
Acute toxicity, inhalation (rat)	LC_{50}=0.48 mg/L, 4 hours

The following data are for 100% methanol. Product contains approximately 1.1% methanol.

Acute toxicity, dermal (rabbit)	LD_{50}=15800 mg/kg
Acute toxicity, inhalation (rat) Acute toxicity, inhalation (cat)	LC_{50}=87.5 mg/L, 6 hours, 4 hours LC_{50}=85.41 mg/L, 4.5 hours
Acute toxicity, oral (dog) Acute toxicity, oral (monkey)	LD_{50}=8,000 mg/kg LD_{50}=2 g/kg

Assessment of other acute effects

Specific target organ toxicity, single exposure: causes damage to organs and may cause respiratory irritation.

Carcinogenicity

Formaldehyde is identified as a carcinogen by NTP, IARC and OSHA.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The following data are from studies using 37% formaldehyde. Product contains approximately 3.7% formaldehyde.

Water flea (Daphnia pulex)	EC_{50}=4.3-7.8 mg/L, 48 hours
Striped bass (Morone saxatilis)	LC_{50}=10.32-16.743 mg/L, 96 hours

The following data are from studies using 100% methanol. Product contains approximately 1.1% methanol.

Water flea (Daphnia magna)	EC_{50}>10,000 mg/L, 48 hours
Fathead minnow (Pimephales promelas)	LC_{50}>100 mg/L, 96 hours

Persistence and degradability
No data available.

Bioaccumulative potential

Partition coefficient n-octanol/water

Formaldehyde	Log Kow = 0.35
Methanol	Log Kow = -0.77

Mobility in soil
No data available.

Other adverse effects
Formaldehyde (37%) contains volatile organic compounds which have a photochemical ozone creation potential.

SECTION 13: DISPOSAL CONSIDERATIONS

Contact a licensed professional waste disposal service to dispose of this material. Proper waste disposal is the generator's responsibility. Follow federal, state (provincial) and local regulations.

SECTION 14: TRANSPORT INFORMATION

DOT (USA)
Ground: Not regulated as a dangerous good.
Air: See IATA information

IATA
Proper Shipping Name: Aviation regulated liquid, n.o.s. (formaldehyde)
Identification Number: UN3334
Hazard Class: 9
Packing Group: III

Environmental hazard
Marine pollutant: Yes

SECTION 15: REGULATORY INFORMATION

OSHA Hazard Communication Standard

This product is considered hazardous in accordance with 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA (National Fire Protection Association) Rating

General note: The ratings provide information to emergency personnel on the fire hazards associated with the chemical. It is not descriptive of hazards under normal conditions of occupational use.

Health	2	Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
Flammability	1	Materials that must be preheated before ignition can occur.
Instability	0	Materials that in themselves are normally stable, even under fire conditions.

Disclaimer

Anatech believes the information in the SDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn may be from sources other than direct test data on the substance itself. It is the user's responsibility to determine suitability of the product for his/her own use, and to assure proper use and disposal to protect the safety and health of employees and the protection of the environment.

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