

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 1 of 7

SECTION 1: IDENTIFICATION

Product: GTF Formalin Substitute

Product number: 444, 449

Synonyms: Glyoxal fixative; tissue fixative

Recommended use: Laboratory chemical

Company

Anatech Ltd	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

Flammable liquid (Category 3)

Skin corrosion/irritation (Category 2)

Eye damage/irritation (Category 2B)

Sensitization-skin (Category 1B)

Germ cell mutagenicity (Category 2) See Section 11.

Specific target organ toxicity, single exposure (STOT-SE) (Category 3) (Respiratory irritant). See Section 11.

Signal word

Warning

Hazard statement

Flammable liquid and vapor.

Causes skin irritation.

Causes eye irritation.

May cause an allergic skin reaction.

Suspected of causing genetic defects (micro-organisms, cell cultures).

May cause respiratory irritation.

Pictogram



Precautionary statements

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing mist/vapors/spray.

Use in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating and lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 2 of 7

Response

If exposed/concern/do not feel well: Call poison center or get medical advice/attention.

If on skin/hair: Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If inhaled: Remove person to fresh air and keep comfortable for breathing.

In case of fire: Use water fog, foam, dry chemical or carbon dioxide to extinguish.

Specific treatment: See Section 4 of this SDS.

Wash skin thoroughly after handling.

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

Storage

Store in a well-ventilated place.

Keep container tightly closed.

Keep cool.

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
Glyoxal	107-22-2	*
Ethanol	64-17-5	*
Buffer	*	*

*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.
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 control center immediately.

Important symptoms, acute and delayed

Brief contact with skin is nonirritating. Prolonged contact can cause irritation.

Ingestion is likely to cause adverse effects on gastrointestinal tract.

Brief contact of liquid with eyes may cause watering and redness.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 3 of 7

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 if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions

Ensure adequate ventilation.
Avoid inhalation of vapors.
Avoid contact with skin and eyes.
Eliminate sources of ignition.
Take precautionary measures against static electricity.

Protective equipment

Wear protective gloves, impermeable aprons and splash-proof goggles.

Emergency procedures

See information in sub-section above.

Methods and materials for containment and cleanup

Eliminate sources of ignition with large spills.
Take precautionary measures against static electricity.
Contain and soak up spill with inert absorbent material. Small spills can be cleaned with a damp sponge.
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.
With large volumes (55 gallon drum), material will accumulate static. Use proper grounding procedures for storage and when moving to transfer containers.

Conditions for safe storage including incompatibilities

Keep containers tightly closed.
Store at room temperature.
Consult local fire codes for additional storage information.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 4 of 7

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure limits

Chemical name	CAS#	Exposure Limit	Value
Glyoxal	107-22-2	ACGIH TLV (TWA)	0.1 mg/m ³ Inhalable fraction and vapor
Ethanol	64-17-5	OSHA (8 hr TWA)	1000 ppm
Buffer	Trade secret	None established	

Appropriate engineering controls

Good general room ventilation should be provided so that exposure limits are not exceeded.
If required provide local exhaust ventilation to control vapors.

Personal protective measures

Respiratory protection	None needed for this concentration. When risk assessment shows one is necessary, wear respirator with organic vapor 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 to slightly pale yellow, liquid
Odor	Mild acidic/alcohol odor
Odor threshold	No data available
pH	3.75-4.25
Melting point/freezing point	No information available
Initial boiling point and boiling range	185°F-220°F (85°C-104°C)
Flash point	102°F (38.9°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	1.003 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

No hazardous reactions if stored and handled as indicated.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reaction

The product is chemically stable.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 5 of 7

Conditions to avoid

Temperatures greater than flash point.

Incompatible materials

Strong alkali.

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 undiluted glyoxal.

Causes temporary irritation of the respiratory tract.

Eye and skin contact causes irritation.

Caused skin sensitization in humans and in animal studies.

Delayed and immediate effects

See information in sub-section above.

Chronic effects from short- and long-term exposure

No information available for this product.

Numerical measures of toxicity

The following data are for undiluted glyoxal.

Acute toxicity, skin (rat)	LC ₅₀ >20,000 ppm, 10 hrs
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The following data are for 100% ethanol.

Acute toxicity, inhalation (rat)	LD ₅₀ >2,000 mg/kg
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Carcinogenicity

None as defined by 29 CFR 1900.1200.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 6 of 7

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The following data are from studies using undiluted glyoxal.

LC=lethal concentration; EC=effective concentration

Test	Duration	Organism	Test Results
Toxicity-fish	96 hours	<i>Leuciscus idus</i>	LC ₅₀ >460-<680 mg/l
Aquatic invertebrates	48 hours	<i>Daphnia magna</i>	EC ₅₀ 404 mg/l
Aquatic plants	72 hours	<i>Scenedesmus subspicatus</i>	EC ₅₀ > 100 mg/l (growth rate)
Chronic toxicity-fish	34 days	<i>Pimephales promelas</i>	No observed effect concentration 112 mg/l
Chronic toxicity-aquatic invertebrates	21 days	<i>Daphnia magna</i>	No observed effect concentration 112 mg/l
Microorganisms/ effect on activated sludge	0.5 hours	Activated sludge	EC ₂₀ >1,000 mg/l

The following data are from studies using full strength ethanol.

LC=lethal concentration

Test	Duration	Organism	Test Results
Acute toxicity-fish	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀ >10,000 mg/l
	96 hours	<i>Pimephales promelas</i>	LC ₅₀ >13,400 mg/l
Aquatic plants	96 hours	<i>Chlorella vulgaris</i>	1,000 mg/l (growth inhibition)
Toxicity to microorganisms	34 days	<i>Pseudmona putida</i>	6,500 mg/l Inhibition of cell multiplication begins

Persistence and degradability

Readily biodegradable (undiluted glyoxal).

Bioaccumulative potential

Bioconcentration factor for full strength glyoxal: 3.2 (calculated).

Mobility in soil

Full strength glyoxal will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Other adverse effects

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Drain disposal may be possible with the permission of local wastewater treatment authorities. Otherwise 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.

SAFETY DATA SHEET



Product Name: GTF Formalin Substitute

Date: April 1, 2015

Page 7 of 7

SECTION 14: TRANSPORT INFORMATION

DOT (USA)

Ground: Not regulated as a dangerous good.

Air: See IATA information

IATA

Proper Shipping Name: Flammable liquid, n.o.s. (ethanol)

Identification Number: UN1993

Hazard Class: 3

Packing Group: III

Marine pollutant

No information available.

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	2	Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Under normal conditions, these materials would not form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating they could release vapor in sufficient quantities to produce hazardous atmospheres with air.
Instability	0	Materials that in themselves are normally stable, even under fire conditions.

Disclaimer

Anatech Ltd. 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 of it to protect the safety and health of employees and the protection of the environment.

Date of preparation

April 1, 2015