



## SAFETY DATA SHEET In Accordance with ISO/DIS 11014

Review Date 01/29/2018

Revision Date 01/29/2018

### 1 Identification of the Substance/Mixture and Company

**Product Name:** Buffered Formalin Concentrate

**SDS Code:** SSFXBFC

**Product Description:** Tissue Fixative

**Manufacturer/Supplier:**

American MasterTech  
1330 Thurman Street  
Lodi, CA 95240  
USA  
(800) 860-4073

**European Authorized Representative:**

Emergo Europe  
Prinsessegracht 20  
2514 AP The Hague,  
The Netherlands

**Emergency Telephone Number:** Infotrac (800) 535-5053 (24 hours) - International (011) 352-323-3500

### 2 Hazards Identification

**Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

Muta. 2 H341 Suspected of causing genetic defects.

Carc. 1A H350 May cause cancer.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Sens. 1 H317 May cause an allergic skin reaction.

**Label elements**

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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**Product Name: Buffered Formalin Concentrate**


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**Hazard pictograms**

GHS05   GHS06   GHS07   GHS08

**Signal word** Danger**Hazard-determining components of labeling:**formaldehyde  
ethanediol**Hazard statements**

Harmful if swallowed.  
 Toxic in contact with skin or if inhaled.  
 Causes severe skin burns and eye damage.  
 May cause an allergic skin reaction.  
 Suspected of causing genetic defects.  
 May cause cancer.

**Precautionary statements**

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Do not breathe dusts or mists.  
 Wash thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Use only outdoors or 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.  
 If swallowed: Call a poison center/doctor if you feel unwell.  
 If swallowed: Rinse mouth. Do NOT induce vomiting.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 IF exposed or concerned: Get medical advice/attention.  
 Immediately call a poison center/doctor.  
 Specific treatment (see on this label).  
 If skin irritation or rash occurs: Get medical advice/attention.  
 Take off immediately all contaminated clothing and wash it before reuse.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:****NFPA ratings (scale 0 - 4)**

Health = 3

Fire = 1

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**

Health = \*3

Fire = 1

Reactivity = 0

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**Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

### 3 Composition

**Chemical characterization: Mixtures****Description:** Mixture of the substances listed below with nonhazardous additions.

<b>Dangerous components:</b>		
50-00-0	formaldehyde	50-100%
107-21-1	ethanediol	25-50%

### 4 First Aid Measures

**Description of first aid measures****General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

**After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:** Immediately wash with water and soap and rinse thoroughly.**After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.**After swallowing:**

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

**Information for doctor:****Most important symptoms and effects, both acute and delayed:** No further relevant information available.**Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

### 5 Firefighting Measures

**Extinguishing media****Suitable extinguishing agents:** Use fire fighting measures that suit the environment.**Special hazards arising from the substance or mixture:** During heating or in case of fire poisonous gases are produced.**Advice for firefighters****Protective equipment:** Mouth respiratory protective device.

### 6 Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

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**Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

**Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**Protective Action Criteria for Chemicals**

<b>PAC-1:</b>		
50-00-0	formaldehyde	0.90 ppm
107-21-1	ethanediol	30 ppm
127-09-3	sodium acetate	11 mg/m <sup>3</sup>
<b>PAC-2:</b>		
50-00-0	formaldehyde	14 ppm
107-21-1	ethanediol	150 ppm
127-09-3	sodium acetate	120 mg/m <sup>3</sup>
<b>PAC-3:</b>		
50-00-0	formaldehyde	56 ppm
107-21-1	ethanediol	900 ppm
127-09-3	sodium acetate	700 mg/m <sup>3</sup>

## 7 Handling and Storage

**Handling:****Precautions for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

**Information about protection against explosions and fires:** Keep respiratory protective device available.**Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Keep receptacle tightly sealed.**Specific end use(s):** No further relevant information available.

## 8 Exposure Controls/Personal Protection

**Additional information about design of technical systems:** No further data; see item 7.

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**Control parameters**

<b>Components with limit values that require monitoring at the workplace:</b>	
<b>50-00-0 formaldehyde</b>	
PEL	Short-term value: 2 ppm Long-term value: 0.75 ppm see 29 CFR 1910.1048(c)
REL	Long-term value: 0.016 ppm Ceiling limit value: 0.1* ppm *15-min; See Pocket Guide App. A
TLV	Short-term value: 0.37 mg/m <sup>3</sup> , 0.3 ppm Long-term value: 0.12 mg/m <sup>3</sup> , 0.1 ppm DSEN; RSEN
<b>107-21-1 ethanediol</b>	
TLV	Short-term value: 10** mg/m <sup>3</sup> , 50* ppm Long-term value: 25* ppm *vapor fraction:**inh. fraction, aerosol only

**Additional information:** The lists that were valid during the creation were used as basis.

**Exposure controls:**
**Personal protective equipment:**
**General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

Safety glasses  
Tightly sealed goggles

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### 9 Physical and Chemical Properties

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance</b>	
<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Pungent, makes eyes water
<b>Odor threshold:</b>	Not determined.
<b>pH-value:</b>	Not determined.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	-21 °C (-5.8 °F)
<b>Flash point:</b>	111 °C (231.8 °F)
<b>Flammability (solid, gaseous):</b>	Not applicable.
<b>Ignition temperature:</b>	~300 °C (~572 °F)
<b>Decomposition temperature:</b>	Not determined.
<b>Auto igniting:</b>	Product is not selfigniting.
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	3.2 Vol %
<b>Upper:</b>	73 Vol %
<b>Vapor pressure at 20 °C (68 °F):</b>	1.7 hPa (1.3 mm Hg)
<b>Density:</b>	Not determined.
<b>Relative density:</b>	Not determined.
<b>Vapour density:</b>	Not determined.
<b>Evaporation rate:</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Fully miscible.
<b>Partition coefficient (n-octanol/water):</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
<b>Other information:</b>	No further relevant information available.

### 10 Stability and Reactivity

**Reactivity:** No further relevant information available.

**Chemical stability:**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions:** No dangerous reactions known.

**Conditions to avoid:** No further relevant information available.

**Incompatible materials:** No further relevant information available.

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**Hazardous decomposition products:** No dangerous decomposition products known.
 

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## 11 Toxicology Information

**Information on toxicological effects**
**Acute toxicity:**

<b>LD/LC50 values that are relevant for classification:</b>		
<b>50-00-0 formaldehyde</b>		
Oral	LD50	>200 mg/kg (rat)
<b>107-21-1 ethanediol</b>		
Oral	LD50	5,840 mg/kg (rat)
Dermal	LD50	9,530 mg/kg (rabbit)

**Primary irritant effect:**
**On the skin:** Caustic effect on skin and mucous membranes.

**On the eye:**

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

**Sensitization:** Sensitization possible through skin contact.

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**Carcinogenic categories**

<b>IARC (International Agency for Research on Cancer)</b>		
50-00-0	formaldehyde	1
<b>NTP (National Toxicology Program)</b>		
50-00-0	formaldehyde	K
<b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>		
50-00-0	formaldehyde	

## 12 Ecological Information

**Toxicity:**
**Aquatic toxicity:** No further relevant information available.

**Persistence and degradability:** No further relevant information available.

**Behavior in environmental systems:**
**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

**Additional ecological information:**
**General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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Danger to drinking water if even small quantities leak into the ground.

**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects:** No further relevant information available.

### 13 Disposal Considerations

**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport Information

<b>UN-Number</b> <b>DOT, ADR, IMDG, IATA</b>	UN2209
<b>UN proper shipping name</b> <b>DOT</b> <b>ADR</b> <b>IMDG, IATA</b>	Formaldehyde solutions mixture 2209 Formaldehyde solutions mixture FORMALDEHYDE SOLUTION mixture
<b>Transport hazard class(es)</b> <b>DOT</b>	
	
<b>Class</b> <b>Label</b>	8 Corrosive substances 8
<b>ADR, IMDG, IATA</b>	
	
<b>Class</b> <b>Label</b>	8 Corrosive substances 8
<b>Packing group</b> <b>DOT, ADR, IMDG, IATA</b>	III
<b>Environmental hazards</b>	Not applicable.
<b>Special precautions for user:</b> <b>Danger code (Kemler):</b> <b>EMS Number:</b> <b>Stowage Category</b>	Warning: Corrosive substances 80 F-A,S-B A
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:</b>	Not applicable.



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<b>Transport/Additional information:</b>	
<b>DOT</b>	
<b>Quantity limitations</b>	On passenger aircraft/rail: 5 L On cargo aircraft only: 60
<b>ADR</b>	
<b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
<b>IMDG</b>	
<b>Limited quantities (LQ)</b>	5L
<b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
<b>UN "Model Regulation":</b>	UN 2209 FORMALDEHYDE SOLUTIONS MIXTURE, 8, III

## 15 Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture  
SARA

**Section 355 (extremely hazardous substances):**

50-00-0 | formaldehyde

**Section 313 (Specific toxic chemical listings):**

50-00-0 | formaldehyde

107-21-1 | ethanediol

**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**Proposition 65**
**Chemicals known to cause cancer:**

50-00-0 | formaldehyde

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

107-21-1 | ethanediol

**Carcinogenic categories**
**EPA (Environmental Protection Agency)**

50-00-0 | formaldehyde

B1

**TLV (Threshold Limit Value established by ACGIH)**

50-00-0 | formaldehyde

A2

107-21-1 | ethanediol

A4

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<b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	
50-00-0	formaldehyde

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms**

GHS05

GHS06

GHS07

GHS08

**Signal word** Danger**Hazard-determining components of labeling:**

formaldehyde

ethanediol

**Hazard statements**

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause cancer.

**Precautionary statements**

Obtain special instructions before use.

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

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or 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.

If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting.

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

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

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

IF exposed or concerned: Get medical advice/attention.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

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

Take off immediately all contaminated clothing and wash it before reuse.

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

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations:****Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

**Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

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**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.
 

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### 16 Other Information

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

**Department issuing SDS:** Regulatory Department

**Contact:** Phone (800) 860-4073

**Date of preparation / last revision** 01/29/2018 / -

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 1A: Carcinogenicity – Category 1A

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