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**SECTION 1: COMPANY AND PRODUCT INFORMATION**

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**1.1 Product identifiers**

Product name : McIlvaine Buffer, pH 4.5, Sterile  
Product code : 40120278  
CAS number : Not available  
Synonyms : Not available

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : For research and laboratory use only.

**1.3 Details of the supplier of the safety data sheet**

Address : Genelix International Inc, dba bioWORLD  
4150 Tuller Rd. Suite 228  
Dublin, OH 43017

Email : tech@bio-world.com

Phone : 614-792-8680, Toll free: 1-888-bio-PLUS

Fax : 614-792-8685

**1.4 Emergency telephone number**

Emergency phone : 1-888-bio-PLUS

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**SECTION 2: HAZARDS IDENTIFICATION**

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**2.1 Classification of substance or mixture**

Eye irritation (Category 2A), H319

**2.2 GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Eye irritation (Category 2A), H319

**2.3 Label elements and precautionary statements**

Pictogram : 

Signal word : Warning

Hazard statement(s) : H319 - Causes serious eye irritation

Precautionary statement(s) : P264 - Wash skin thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+313 - If eye irritation persists: Get medical advice/ attention.

**2.4 Hazards not otherwise classified (HNOC) or not covered by GHS**

No unclassified hazards known.

## 2.5 NFPA Rating

Health hazard : 2  
Fire hazard : 0  
Reactivity hazard : 0

## 2.6 HMIS Rating

Health hazard : 2  
Chronic health hazard : -  
Reactivity hazard : 0  
Flammability : 0  
Physical hazard : 0

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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### 3.1 Substances

Substance	CAS#	EC#	Concentration
Citric Acid M.F: C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> M.W: 192.12 g/mol	77-92-9	201-069-1	≤5%

### 3.2 Hazardous components & classification

Eye Irrit.2A; H319

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## SECTION 4: FIRST AID MEASURES

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### 4.1 Description of first aid measures

#### General advice

Consult a physician if symptoms are severe or persistent. Provide this data sheet to medical personnel. If product is spilled or leaked, evacuate area.

#### In case of inhalation

If inhaled, move person to fresh air and monitor breathing. If not breathing, give artificial ventilation. Consult a physician if symptoms are severe or persistent.

#### In case of skin contact

Immediately wash with excess soap and water. If spilled on clothing, remove all affected clothing. Consult a physician if symptoms are severe or persistent.

#### In case of eye contact

Flush eyes with water or eye wash solution as a precaution for 15 minutes. Consult a physician if symptoms are severe or persistent.

#### In case of ingestion

Only induce vomiting if recommended by medical personnel. If subject is unconscious, do not give anything by mouth. If conscious, rinse mouth with water. Consult a physician if symptoms are severe or persistent.

### 4.2 Most important symptoms and effects, both acute and delayed

All known important symptoms are described in Section 2 and/or Section 11. No other important symptoms to report.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

No special treatment indicated. Provide treatment in accordance with exhibited systems.

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### **SECTION 5: FIREFIGHTING MEASURES**

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#### **5.1 Suitable extinguishing media**

Water spray, alcohol-resistant foam, dry chemical, and carbon dioxide extinguishers are suitable.

#### **5.2 Unsuitable extinguishing media**

No known unsuitable extinguishing media.

#### **5.3 Special hazards arising from the substance**

Phosphorous and Sodium oxides may form under fire conditions.

#### **5.4 Advice for firefighters**

Wear protective gear, such as self-contained breathing apparatus, if necessary

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### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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#### **6.1 Personal precautions, protective equipment and emergency procedures**

Provide suitable ventilation. Use any necessary personal protective equipment. Avoid contact with skin and eyes, and avoid creation and inhalation of vapor or dust. Keep all unnecessary personnel away.

**For personal protection see section 8**

#### **6.2 Environmental precautions**

Prevent product from entering public sewers and waterways.

#### **6.3 Methods and material for containment and cleaning up**

Use inert absorbent material to absorb any spilled or leaked product. Keep in suitable, closed containers for disposal.

**For proper disposal see section 13**

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### **SECTION 7: HANDLING AND STORAGE**

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#### **7.1 Precautions for safe handling**

Provide suitable ventilation. Wear any necessary personal protective equipment.

**For precautions see section 2**

#### **7.2 Conditions for safe storage, including any incompatibilities**

Storage conditions : Store upright, closed container in arid, ventilated environment.

Incompatible materials : Oxidizing agents, strong acids, bases, reducing agents, and nitrates are incompatible with this product.

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### **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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#### **8.1 Control parameters**

This product is not known to contain any substances with occupational exposure limit values.

#### **8.2 Engineering controls**

Follow good industrial hygiene and safety practices when handling product.

#### **8.3 Personal protective equipment**

Eye/face protection	: Use only government-approved safety glasses with side-shields.
Skin protection	: Use gloves when handling product. Inspect gloves before use to ensure suitability for use. Remove without exposing skin to the gloves outer surface. Discard used gloves according to all pertinent laws and/or current good practices (cGXP). Wash hands with soap and water.
Body protection	: Wear appropriate clothing. Ensure clothing is in good condition, with no holes or tears. When selecting clothing, consider the concentration and amount of substance to be handled.
Respiratory protection	: Use only approved respirators and components which comply with CDC and NIOSH (US) or CEN (EU) regulations. Required only when vapors or aerosols are created.
Control of environmental exposure	: Prevent product from entering the environment, especially through public sewers or waterways.
General hygiene considerations	: Comply with general industrial hygiene practice guidelines.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Information on basic physical and chemical properties

a)	Appearance	: Clear, colorless
b)	Physical states	: Liquid
c)	Odor	: Not available
d)	Odor threshold	: Not available
e)	Melting point	: Not available
f)	Boiling point range	: Not available
g)	pH	: 4.5
h)	Density	: Not available
i)	Flash point	: Not available
j)	Evaporation rate	: Not available
k)	Flammability	: Not available
l)	Upper/lower flammability or explosive limits:	: Not available
m)	Vapor pressure	: Not available
n)	Vapor density	: Not available
o)	Relative density	: Not available
p)	Water solubility	: Not available
q)	Partition coefficient:n-octanol/water	: Not available
r)	Autoignition temperature	: Not available
s)	Decomposition temperature	: Not available

- t) Kinematic viscosity : Not available
- u) Explosive properties : Not available
- v) Oxidizing properties : Not available
- w) Solubility in other solvents : Not available
- x) Surface tension : Not available

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## SECTION 10: STABILITY AND REACTIVITY

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### 10.1 Reactivity

No special reactivity is known.

### 10.2 Chemical stability

Product is stable when stored and used as recommended.

### 10.3 Stability note(s)

No special or unusual instability known.

### 10.4 Polymerization

No known polymerization.

### 10.5 Possibility of hazardous reactions

No hazardous reactions are known.

### 10.6 Incompatible materials

Oxidizing agents, strong acids, bases, reducing agents, and nitrates are incompatible with this product.

### 10.7 Hazardous decomposition products

Phosphorous and Sodium oxides may form under fire conditions.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### 11.1 Acute toxicity

LD50 Oral : Citric Acid: Rat - 5400 mg/kg

LD50 Dermal : Citric Acid: Rat - > 2000 mg/kg

LC50 Inhalation : No toxicity data available.

### 11.2 Skin corrosion/irritation

Citric Acid: Mild skin irritation (Rabbit)

### 11.3 Serious eye damage/eye irritation

Citric Acid: Irritating to eyes (Rabbit)

### 11.4 Respiratory or skin sensitization

Prolonged or repeated exposure may cause allergic reactions in certain individuals.

### 11.5 Germ cell mutagenicity

No mutagenicity data available.

### 11.6 Carcinogenicity

IARC : Product and components are not regulated by the IARC.

ACGIH : Product and components are not regulated by the ACGIH.

NTP : Product and components are not regulated by the NTP.

OSHA : Product and components are not regulated by OSHA.

#### **11.7 Reproductive toxicity**

No reproductive toxicity data available.

#### **11.8 Specific target organ toxicity – single exposure**

No specific organ toxicity data available.

#### **11.9 Specific target organ toxicity – repeated exposure**

No specific organ toxicity data available.

#### **11.10 Aspiration hazard**

No aspiration hazard data available.

#### **11.11 Additional Information**

RTECS: GE7350000 (Citric acid)

Can cause vomiting, diarrhea, damage to tooth enamel, and dermatitis.

RTECS: WC4500000 (Sodium phosphate dibasic dihydrate)

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### **SECTION 12: ECOLOGICAL INFORMATION**

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#### **12.1 Toxicity**

Citric Acid:

Species: Water Flea (*Daphnia magna*). Exposure: 24 hours. Result: Static Test 1,535 mg/L.

#### **12.2 Aquatic toxicity**

Citric Acid:

Species: *Leuciscus idus melanotus*. Exposure: 48 hours. Result: Mortality LC50 440 mg/L.

#### **12.3 Persistence and degradability**

No persistence/degradability data available.

#### **12.4 Bioaccumulative potential**

No bioaccumulation data available.

#### **12.5 Mobility in soil**

No soil mobility data available.

#### **12.6 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment is not required/was not conducted.

#### **12.7 Other adverse effect**

No other adverse effect data available.

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### **SECTION 13: DISPOSAL CONSIDERATIONS**

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#### **13.1 Product**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult and adhere to local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

#### **13.2 Packaging**

Packaging should be disposed of in the same manner as unused product.

### 13.3 Recommendation

Disposal must be made according to official regulations.

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## SECTION 14: TRANSPORTATION INFORMATION

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### 14.1 DOT (US)

Not a dangerous good under DOT(US) regulations.

### 14.2 IMDG

Not a dangerous good under IMDG regulations.

### 14.3 IATA

Not a dangerous good under IATA regulations.

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## SECTION 15: REGULATORY INFORMATION

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### 15.1 SARA

SARA 302: This product and components are not subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This product does not contain any components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

SARA 311/312: Acute Health Hazard.

### 15.2 Clean water act (CWA)

No chemicals are present in this product that are subject to regulation under the Clean Water Act.

### 15.3 Right to know components

Massachusetts : No chemicals are present which require disclosure under the Massachusetts Right to Know Act.

Pennsylvania : Citric Acid CAS No.: 77-92-9

New Jersey : Citric Acid CAS No.: 77-92-9

California : This product contains no chemicals which are known to the State of  
proposition 65 California to cause cancer, or birth defects or other reproductive harm.  
components

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## SECTION 16: OTHER INFORMATION

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### 16.1 Disclaimer

This product is offered by bioWORLD for research, laboratory or further manufacturing use. Not for human use or consumption. The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchant-ability 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 bio-WORLD.com 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 bio-WORLD.com has been advised of the possibility of such damages.

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## **16.2 Preparation Information**

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