SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Buffer AL

Manufacturer or supplier's details

Company : QIAGEN GmbH
QIAGEN Str. 1
D-40724 Hilden

Telephone : +49-02103-29-0

Responsible Department : QIAGEN Technical Service, QIAGEN Inc.,
27220 Turnberry Lane,
Valencia, CA 91355, USA,
Tel.: 1-800-DNA-PREP (1-800-362-7737),
Email: techservice-us@qiagen.com

E-mail address Responsible/issuing person : cpc@qiagen.com

Emergency telephone : CHEMTREC
USA & Canada 1-800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Laboratory chemicals

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitization : Category 1

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements :
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
Precautionary Statements

Prevention:
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Potential Health Effects

Aggravated Medical Condition: None known.
Symptoms of Overexposure: No information available.

Carcinogenicity:

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>guanidine hydrochloride</td>
<td>50-01-1</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>maleic acid</td>
<td>T10-16-7</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled: If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
In case of eye contact: Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: If accidentally swallowed obtain immediate medical attention. Rinse mouth with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. No information available.

Notes to physician: No information available.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards during fire fighting: Exposure to decomposition products may be a hazard to health.

Hazardous combustion products: No hazardous combustion products are known

Specific extinguishing methods: In the event of fire and/or explosion do not breathe fumes.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES


Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.
SECTION 7. HANDLING AND STORAGE

Advice on safe handling:
- Do not breathe vapors/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.
- Dispose of rinse water in accordance with local and national regulations.
- Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage:
- Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters:
Contains no substances with occupational exposure limit values.

Personal protective equipment
Respiratory protection:
- In the case of vapor formation use a respirator with an approved filter.

Hand protection
Remarks:
- The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Material:
- Protective gloves

Eye protection:
- Safety glasses
  - Wear face-shield and protective suit for abnormal processing problems.
  - Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection:
- Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Footwear protecting against chemicals

Hygiene measures:
- Keep away from food and drink.
  - Wash hands before breaks and at the end of workday.
Ensure adequate ventilation, especially in confined areas.
Keep working clothes separately.
Avoid contact with the skin and the eyes.
When using do not eat, drink or smoke.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
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<td>Color</td>
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</tr>
<tr>
<td>Odor</td>
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<td>Odor Threshold</td>
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<td>pH</td>
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<td>Melting point/range</td>
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<tr>
<td>Boiling point/boiling range</td>
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<tr>
<td>Flash point</td>
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</tr>
<tr>
<td>Evaporation rate</td>
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<td>Burning rate</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
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<tr>
<td>Lower explosion limit</td>
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<td>Vapor pressure</td>
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<tr>
<td>Relative density</td>
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<tr>
<td>Density</td>
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<tr>
<td>Solubility(ies)</td>
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<td>Solubility in other solvents</td>
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<td>Partition coefficient: n-octanol/water</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
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<tr>
<td>Thermal decomposition</td>
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<td>Viscosity</td>
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<td>Viscosity, dynamic</td>
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<tr>
<td>Viscosity, kinematic</td>
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<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>
SECTION 10. STABILITY AND REACTIVITY

Reactivity: No decomposition if stored and applied as directed.
Chemical stability: No decomposition if stored and applied as directed.
Possibility of hazardous reactions: Stable under recommended storage conditions.
Hazardous decomposition products formed under fire conditions. Keep away from oxidizing agents, and acidic or alkaline products.
Conditions to avoid: No data available
Incompatible materials: No data available
Hazardous decomposition products: No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:
Acute oral toxicity: No data available
Acute inhalation toxicity: No data available
Acute dermal toxicity: No data available

Ingredients:

guanidine hydrochloride:
Acute oral toxicity: LD50 Oral Rat: 1,120 mg/kg

maleic acid:
Acute oral toxicity: LD50 Oral Rat: 708 mg/kg
Acute inhalation toxicity: Rat: 0.72 mg/l
Exposure time: 1 h
Acute dermal toxicity: LD50 Dermal Rabbit: 1,560 mg/kg

Skin corrosion/irritation

Product:
May cause skin irritation and/or dermatitis.

**Ingredients:**

*maleic acid:*
Species: Rabbit  
Exposure time: 24 h  
Result: Mild skin irritation

**Serious eye damage/eye irritation**

**Product:**
Remarks:
May cause irreversible eye damage.

**Ingredients:**

*maleic acid:*
Species: Rabbit  
Result: Eye irritation

**Respiratory or skin sensitization**

**Product:**
Remarks:
Causes sensitization.

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**STOT-single exposure**

**Ingredients:**

*maleic acid:*
Routes of exposure: Inhalation  
Assessment: May cause respiratory irritation.

**STOT-repeated exposure**
No data available

**Aspiration toxicity**
No data available
SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

**Product:**

- **Toxicity to fish:** No data available
- **Toxicity to algae:** No data available
- **Toxicity to bacteria:** No data available

**Ingredients:**

- maleic acid:
  - **Toxicity to fish:**
    - LC50 (Pimephales promelas (fathead minnow)): 5 mg/l
    - Exposure time: 96 h
    - LC0 (Lepomis macrochirus (Bluegill sunfish)): 300 mg/l
    - Exposure time: 96 h
  - **Toxicity to daphnia and other aquatic invertebrates:**
    - EC100 (Daphnia magna (Water flea)): 160 mg/l
    - Exposure time: 48 h
    - EC50 (Daphnia magna (Water flea)): 160 mg/l
    - Exposure time: 48 h
    - EC100 (Daphnia magna (Water flea)): 200 mg/l
    - Exposure time: 24 h
  - **Toxicity to algae:**
    - EC50 (Desmodesmus subspicatus (green algae)): 41 mg/l
    - Exposure time: 72 h

Persistence and degradability

**Ingredients:**

- guanidine hydrochloride:

  - Biodegradability: Method: OECD Test Guideline 301C
  - Remarks: According to the results of tests of biodegradability this product is not readily biodegradable.
Bioaccumulative potential

**Product:**
- Bioaccumulation: No data available
- Partition coefficient: n-octanol/water: No data available

**Ingredients:**
- guanidine hydrochloride:
  - Partition coefficient: n-octanol/water: log Pow: ca. -1.7 (20 °C)

Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**
- Waste from residues: Send to a licensed waste management company.
- Contaminated packaging: Dispose of as unused product.
- Dispose of as hazardous waste in compliance with local and national regulations.
- Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

**UNRTDG**
Not regulated as a dangerous good

**IATA-DGR**
Not regulated as a dangerous good

**IMDG-Code**
Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
No data available

**Domestic regulation**
- **49 CFR**
  - Not regulated as a dangerous good
Special precautions for user:

Remarks: Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

OSHA Hazards: Toxic by ingestion
EPCRA - Emergency Planning and Community Right-to-Know

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Acute Health Hazard

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations
California Prop 65: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16. OTHER INFORMATION

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.