SAFETY DATA SHEET

Buffer AW1

Version 2.1  Revision Date 10/19/2015  Print Date 06/28/2016

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Buffer AW1

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 : 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

Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A

GHS Label element

Hazard pictograms : !

Signal Word : Warning

Hazard Statements : H302 + H332 Harmful if swallowed or if inhaled.
                   H315 Causes skin irritation.
                   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;= 50 - &lt; 70</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: Harmful if swallowed or if inhaled.
   Causes skin irritation.
   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

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment.
   Ensure adequate ventilation.
   Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

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 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.  

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.  
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>
</tr>
<tr>
<td>Color</td>
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</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
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<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>4.5</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Burning rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density</td>
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</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.168 g/cm³</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
<td>not determined</td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<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

Skin corrosion/irritation

Product:
- May irritate skin.

Serious eye damage/eye irritation

Product:
- Remarks: May cause irreversible eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

STOT-single exposure
No data available

STOT-repeated exposure
No data available

Aspiration toxicity
No data available

Further information
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

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 :
### SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

<table>
<thead>
<tr>
<th>Description</th>
<th>Disposal Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste from residues</td>
<td>Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations.</td>
</tr>
<tr>
<td>Contaminated packaging</td>
<td>Dispose of as unused product. Do not re-use empty containers.</td>
</tr>
</tbody>
</table>

### 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.
OSHA Hazards : Toxic by ingestion

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

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.