



**MATERIAL SAFETY DATA SHEET (MSDS)**

**Kit Name:** VitroSure™ DNA FFPE Tissue Isolation Kit  
**SKU #:** VB-5001

**Revision Date:** 10-16-2023

**Components:**

Buffer VTL
RNase A (100mg/ml)
Buffer VL
Buffer VW1
Buffer VW2
Buffer VTE
Proteinase K Powder
Proteinase K Buffer

## Buffer VTL MSDS

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

#### Identification of the substance or mixture

**Product Name** Buffer VTL  
**Product number**  
**Product Description** Kit Component

#### Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

### 2. Composition/information on ingredients

#### Composition:

Name	CAS #
sodium dodecyl sulphate	151-21-3

### 3. Hazards Identification

#### **GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

#### **GHS label elements**

Not a hazardous substance or mixture.

#### **Other hazards**

None known.

### 4. First Aid Measures

**General Advice** Show this safety data sheet to the doctor in attendance.  
**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.  
**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.  
**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.  
**Ingestion** Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.  
**Most important symptoms and effects** Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation \

**Notes to Physician** Treat symptomatically

### 5. Fire Fighting Measures

**Suitable extinguishing media :** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Specific hazards during fire fighting :** Exposure to decomposition products may be a hazard to health.  
**Hazardous combustion products :** Carbon oxides Nitrogen oxides (NOx) Sulfur oxides  
**Further information :** 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

**6. Accidental Release Measures**

**Personal Precautions** Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

**Environmental Precautions** Prevent further leakage or spillage if safe to do so.

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal.

**7. Handling and Storage**

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store near combustible materials. Incompatible Materials. Reducing Agent. Strong acids. Strong reducing agents. Combustible material

**8. Exposure Controls, Personal Protection**

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

**Personal protective equipment**

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).

Eye protection : Safety glasses

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.

**9. Physical and Chemical Properties**

<b>Physical State</b>	liquid
<b>Appearance</b>	No data available
<b>Odor</b>	characteristic
<b>Odor Threshold</b>	No information available
<b>pH</b>	8.3
<b>Melting Point/Range</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable

<b>Specific Gravity</b>	1.03 g/cm <sup>3</sup>
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	Not applicable

#### 10. Stability and Reactivity

<b>Reactivity :</b>	No decomposition if stored and applied as directed.
<b>Chemical stability :</b>	No decomposition if stored and applied as directed.
<b>Conditions to avoid :</b>	No data available
<b>Incompatible materials :</b>	No data available
<b>Hazardous decomposition products :</b>	No decomposition if stored and applied as directed.

#### 11. Toxicological Information

##### Acute toxicity

Not classified based on available information.

##### Product:

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

##### Components:

##### sodium dodecyl sulphate:

Acute oral toxicity :	LD50 Oral (Rat): 977 mg/kg
Acute dermal toxicity :	LD50 Dermal (Rabbit): 580 mg/kg

Skin corrosion/irritation

Not classified based on available information.

##### Product:

Remarks : May cause skin irritation and/or dermatitis.

##### Components:

##### sodium dodecyl sulphate:

Species :	Rabbit
Exposure time :	24 h
Result :	Irritating to skin.

##### Serious eye damage/eye irritation

Not classified based on available information.

Product:	Remarks : The product causes irritation of eyes, skin and mucous membranes.
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##### Components:

##### sodium dodecyl sulphate:

Species :	Rabbit
Result :	Risk of serious damage to eyes.
Method :	OECD Test Guideline 405

##### Respiratory or skin sensitization

##### Skin sensitization

Not classified based on available information.

##### Respiratory sensitization

Not classified based on available information.

##### Product:

Remarks : No data available

##### Germ cell mutagenicity

Not classified based on available information.

##### Carcinogenicity

Not classified based on available information.

##### 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.

##### OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### 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.

##### Reproductive toxicity

Not classified based on available information. STOT-single exposure  
Not classified based on available information.

**Components:****sodium dodecyl sulphate:**

Routes of exposure : Inhalation  
 Assessment : May cause respiratory irritation.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

**Further information****Product:**

Remarks : No data available

**12. Ecological Information****Ecotoxicity****Product:**

Toxicity to fish : Remarks: No data available

Toxicity to algae/aquatic plants : Remarks: No data available

Toxicity to microorganisms : Remarks: No data available

**Components: sodium dodecyl sulphate:**

Toxicity to fish : NOEC (Oncorhynchus mykiss (rainbow trout)): 19.5 mg/l Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): 3.6 mg/l Exposure time: 96 h

Toxicity to algae/aquatic : (Pseudokirchneriella subcapitata (green algae)): 2.68 mg/l plants Exposure time: 150 h Test Type: Growth inhibition

Persistence and degradability No data available

**Bioaccumulative potential****Product:**

Bioaccumulation : Remarks: No data available

Components: sodium dodecyl sulphate:

Partition coefficient: n-octanol/water : log Pow: 1.6

Mobility in soil No data available

**Other adverse effects****Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This **product** neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

**13. Disposal Information****Waste Disposal Methods**

Waste from residues : Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Dispose of as unused product. Do not re-use empty containers.

**14. Transport Information****International Regulations**

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**

Not applicable for product as supplied.

**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.

### 15. Regulatory Information

#### **CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

#### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

#### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards :** No SARA Hazards

**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.

**TSCA list** No substances are subject to a Significant New Use Rule.  
No substances are subject to TSCA 12(b) export notification requirements.

### 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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## RNase A MSDS

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

#### Identification of the substance or mixture

**Product Name** RNase A  
**Product number**  
**Product Description** Kit Component

#### Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

### 2. Composition/information on ingredients

**Chemical Description:** An aqueous solution of ferric chloride and hydrochloric acid.

Name	CAS #.
RNase A	9001-99-4

### 3. Hazards Identification

#### **GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Respiratory sensitization : Category 1  
Skin sensitization : Category 1

#### **GHS label elements**

Hazard pictograms :  
Signal Word : Danger  
Hazard Statements : H317 May cause an allergic skin reaction. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statements : **Prevention:**  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.  
P280 Wear protective gloves/ protective clothing/ eye protection face protection.  
P285 In case of inadequate ventilation wear respiratory protection.

**Response:**  
P304 + P341 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. P  
333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.  
P363 Wash contaminated clothing before reuse.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards** None known.

### 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. Keep respiratory tract clear. 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 : 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 :  
May cause an allergic skin reaction.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
No information available.

Notes to physician : No information available.

## 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 : Carbon oxides Nitrogen oxides (NO<sub>x</sub>)

Further information : 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

## 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

## 7. Handling and Storage

### Advice on protection against fire and explosion :

Normal measures for preventive fire protection.

### Advice on safe handling :

Avoid formation of aerosol. 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.

Provide sufficient air exchange and/or exhaust in work rooms. 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.

### Further information on storage

Keep container tightly closed in a dry and well-ventilated place.

### Further information on storage stability :

No decomposition if stored and applied as directed

## 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	
Material :	Protective gloves
Material :	Nitrile rubber
Break through time :	480 min
Glove thickness :	0.35 mm
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). Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves.
Eye protection :	Tightly fitting safety goggles Do not wear contact lenses.
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

## 9. Physical and Chemical Properties

Appearance :	liquid
Color :	No data available
Odor :	characteristic
Odor Threshold :	No data available
pH :	No data available
Melting point/range :	No data available
Boiling point/boiling range :	No data available
Flash point :	Not applicable
Evaporation rate :	No data available
Burning rate :	No data available
Upper explosion limit / Upper flammability limit :	No data available
Lower explosion limit / Lower flammability limit :	No data available
Vapor pressure :	No data available
Relative vapor density :	No data available
Relative density :	No data available
Density :	No data available
Solubility(ies)	
Water solubility :	No data available
Solubility in other solvents :	No data available
Partition coefficient: n-octanol/water :	No data available
Autoignition temperature :	not determined
Decomposition temperature :	No data available
Viscosity	
Viscosity, dynamic :	No data available
Viscosity, kinematic :	No data available
Explosive properties :	No data available
Oxidizing properties :	No data available

## 10. Stability and Reactivity Data

Reactivity :	No decomposition if stored and applied as directed.
Chemical stability :	No decomposition if stored and applied as directed.
Conditions to avoid :	No data available
Incompatible materials :	No data available Hazardous decomposition products

## 11. Toxicological Information

**Acute toxicity** Not classified based on available information.

**Product:**

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

**Skin corrosion/irritation**

Not classified based on available information.

**Product:**

Remarks : May cause skin irritation and/or dermatitis.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Product:**

Remarks : The product causes irritation of eyes, skin and mucous membranes.

**Respiratory or skin sensitization**

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Product:**

Remarks : Causes sensitization.

May cause sensitization by inhalation and skin contact.

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**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.

**OSHA**

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**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.

**Reproductive toxicity**

Not classified based on available information

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

**Further information**

Product: Remarks : No data available

**12. Ecological Information**

**Ecotoxicity**

Product:

Toxicity to fish : Remarks: No data available

Toxicity to algae/aquatic plants : Remarks: No data available

Toxicity to microorganisms : Remarks: No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

**Product:**

Bioaccumulation : Remarks: No data available

**Mobility in soil**

No data available

**Other adverse effects**

**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

**Additional ecological information :** No data available

### 13. Disposal Considerations

#### Disposal methods

Waste from residues : Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Dispose of as unused product. Do not re-use empty containers.

### 14. Transport Information

#### International Regulations

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

Not applicable for product as supplied. Domestic regulation

49 CFR Not regulated as a dangerous good

### 15. Regulatory Information

#### 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 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards :** Respiratory or skin sensitization

**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.

**Clean Air Act** This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F): hydrogen chloride 7647-01-0

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489)

**Clean Water Act** This product does not contain any Hazardous Substances listed under the U.S. Clean Water Act, Section 311, Table 116.4A. This product does not contain any Hazardous Chemicals listed under the U.S. Clean Water Act, Section 311, Table 117.3. This product does not contain any toxic pollutants listed under the U.S. Clean Water Act

Section 307 This product does not contain any priority pollutants related to the U.S. Clean Water Act.

**US State Regulations**

**Pennsylvania Right To Know**

water 7732-18-5  
ribonuclease 9001-99-4

**Maine Chemicals of High Concern**

This product does not contain any chemicals that are listed as Maine Chemicals of High Concern.

**Maine Chemicals of High Concern**

This product does not contain any listed chemicals

**New Jersey Right To Know**

water 7732-18-5  
ribonuclease 9001-99-4

**TSCA list**

No substances are subject to a Significant New Use Rule.  
No substances are subject to TSCA 12(b) export notification requirements.

**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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## Buffer VL MSDS

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

#### Identification of the substance or mixture

**Product Name** Buffer VL  
**Product number**  
**Product Description** Kit Component

#### Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 29850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

### 2. Composition/information on ingredients

#### Composition:

Composition	CAS #
Guanidine Hydrochloride	50-01-1

### 3. Hazards Identification

#### **GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

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

#### **GHS label elements**

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.

#### **Response:**

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.

**Other hazards** None known.

### 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 : No information available. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.  
Notes to physician : No information available.

#### 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 : Carbon oxides  
Nitrogen oxides (NOx)  
Further information : 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

#### 6. Accidental Release Measures

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

Use personal protective equipment. 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.

#### 7. Handling and Storage

Advice on protection against fire and explosion : Normal measures for preventive fire protection.  
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.  
Further information storage stability: No decomposition if stored and applied as directed

#### 8. Exposure Controls / Personal Protection

##### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

##### Personal protective equipment

Hand protection

Material :

Protective gloves

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).

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

Hygiene measures :

concentration of the dangerous substance at the work place.  
Footwear protecting against chemicals  
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.

## 9. Physical and Chemical Properties

Appearance :	liquid
Color :	No data available
Odor :	characteristic
Odor Threshold :	No data available
pH :	6
Melting point/range :	No data available
Boiling point/boiling range :	No data available
Flash point :	No data available
Evaporation rate :	No data available
Burning rate :	No data available
Upper explosion limit / Upper flammability limit :	No data available
Lower explosion limit / Lower flammability limit :	No data available
Vapor pressure :	No data available
Relative vapor density :	No data available
Relative density :	No data available
Density :	1.16 g/cm <sup>3</sup> Solubility(ies)
Water solubility :	No data available
Solubility in other solvents :	No data available
Partition coefficient: n-octanol/water :	No data available
Autoignition temperature :	not determined
Decomposition temperature :	No data available
Viscosity	
Viscosity, dynamic :	No data available
Viscosity, kinematic :	No data available
Explosive properties :	No data available
Oxidizing properties :	No data available

## 10. Stability and Reactivity Data

Reactivity :	No decomposition if stored and applied as directed.
Chemical stability :	No decomposition if stored and applied as directed.
Conditions to avoid :	No data available
Incompatible materials :	No data available
Hazardous decomposition products	No decomposition if stored and applied as directed.

## 11. Toxicological Information

**Acute toxicity** Not classified based on available information.

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

### Components: guanidine hydrochloride:

Acute oral toxicity : LD50 Oral (Rat): 1,120 mg/kg

### Skin corrosion/irritation

Causes skin irritation.

Product:

Remarks :

May cause skin irritation and/or dermatitis.

### Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

<b>Product:</b>	Remarks : Causes sensitization.
<b>Germ cell mutagenicity</b>	Not classified based on available information. Carcinogenicity Not classified based on available information.
<b>IARC</b>	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.
<b>OSHA</b>	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
<b>NTP</b>	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.
<b>Reproductive toxicity</b>	Not classified based on available information
<b>STOT-single exposure</b>	Not classified based on available information
<b>STOT-repeated exposure</b>	Not classified based on available information.
<b>Aspiration toxicity</b>	Not classified based on available information. Further information
<b>Product:</b>	Remarks : No data available

## 12. Ecological Information

### Ecotoxicity

<b>Product:</b>	Remarks: No data available
<b>Toxicity to fish :</b>	Remarks: No data available
<b>Toxicity to algae/aquatic plants :</b>	Remarks: No data available
<b>Toxicity to microorganisms :</b>	Remarks: No data available

### Persistence and degradability

#### Components:

#### guanidine hydrochloride:

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

#### Product:

<b>Bioaccumulation :</b>	Remarks: No data available
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#### Components:

#### guanidine hydrochloride:

<b>Partition coefficient: n-octanol/water :</b>	log Pow: ca. -1.7 (68 °F / 20 °C)
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#### Mobility in soil

No data available

#### Other adverse effects

#### Product:

<b>Ozone-Depletion Potential :</b>	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
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<b>Additional ecological information :</b>	No data available
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## 13. Disposal Considerations

### Disposal methods

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

## 14. Transport Information

### International Regulations



<b>UNRTDG</b>	Not regulated as a dangerous good
<b>IATA-DGR</b>	Not regulated as a dangerous good
<b>IMDG-Code</b>	Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not applicable for product as supplied.

**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

## 15. Regulatory Information

### CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

<b>SARA 311/312 Hazards :</b>	Respiratory or skin sensitization Skin corrosion or irritation Serious eye damage or eye irritation
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.
<b>TSCA list</b>	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.

## 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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Buffer VW1  
**Product number**  
**Product Description** Kit Component

**Manufacturer/Supplier**

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
 Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

**2. Composition/information on ingredients**

Composition	CAS #
Guanidine Hydrochloride	50-01-1

**3. Hazards Identification**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

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

**GHS label elements**

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:**  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
 P362 Take off contaminated clothing and wash before reuse.  
**Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**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 : No information available. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.  
 Notes to physician : No information available.

## 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 :	Carbon oxides Nitrogen oxides (NOx)
Further information :	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	

## 6. Accidental Release Measures

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

Use personal protective equipment. 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.

## 7. Handling and Storage

Advice on protection against fire and explosion :	Normal measures for preventive fire protection.
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.
Further information storage stability:	No decomposition if stored and applied as directed

## 8. Exposure Controls / Personal Protection

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Personal protective equipment

Hand protection

Material :

Remarks :

Protective gloves

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).  
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.

Eye protection :

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.

**9. Physical and Chemical Properties**

Appearance :	liquid
Color :	No data available
Odor :	characteristic
Odor Threshold :	No data available
pH :	6
Melting point/range :	No data available
Boiling point/boiling range :	No data available
Flash point :	No data available
Evaporation rate :	No data available
Burning rate :	No data available
Upper explosion limit / Upper flammability limit :	No data available
Lower explosion limit / Lower flammability limit :	No data available
Vapor pressure :	No data available
Relative vapor density :	No data available
Relative density :	No data available
Density :	1.16 g/cm <sup>3</sup> Solubility(ies)
Water solubility :	No data available
Solubility in other solvents :	No data available
Partition coefficient: n-octanol/water :	No data available
Autoignition temperature :	not determined
Decomposition temperature :	No data available
Viscosity	
Viscosity, dynamic :	No data available
Viscosity, kinematic :	No data available
Explosive properties :	No data available
Oxidizing properties :	No data available

**10. Stability and Reactivity Data**

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.

**11. Toxicological Information**

<b>Acute toxicity</b>	Not classified based on available information.
Product:	
Acute oral toxicity :	Remarks: No data available
Acute inhalation toxicity :	Remarks: No data available
Acute dermal toxicity :	Remarks: No data available

**Components: guanidine hydrochloride:**  
 Acute oral toxicity : LD50 Oral (Rat): 1,120 mg/kg

<b>Skin corrosion/irritation</b>	Causes skin irritation.
Product:	
Remarks :	May cause skin irritation and/or dermatitis.

<b>Respiratory or skin sensitization</b>	
Skin sensitization	May cause an allergic skin reaction.
Respiratory sensitization	Not classified based on available information.

<b>Product:</b>	Remarks : Causes sensitization.
<b>Germ cell mutagenicity</b>	Not classified based on available information. Carcinogenicity Not classified based on available information.
<b>IARC</b>	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.
<b>OSHA</b>	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
<b>NTP</b>	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.
<b>Reproductive toxicity</b>	Not classified based on available information
<b>STOT-single exposure</b>	Not classified based on available information
<b>STOT-repeated exposure</b>	Not classified based on available information.
<b>Aspiration toxicity</b>	Not classified based on available information. Further information
<b>Product:</b>	Remarks : No data available

## 12. Ecological Information

### Ecotoxicity

<b>Product:</b>	Remarks: No data available
<b>Toxicity to fish :</b>	Remarks: No data available
<b>Toxicity to algae/aquatic plants :</b>	Remarks: No data available
<b>Toxicity to microorganisms :</b>	Remarks: No data available

### Persistence and degradability

#### Components:

#### guanidine hydrochloride:

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

#### Product:

<b>Bioaccumulation :</b>	Remarks: No data available
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#### Components:

#### guanidine hydrochloride:

<b>Partition coefficient: n-octanol/water :</b>	log Pow: ca. -1.7 (68 °F / 20 °C)
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<b>Mobility in soil</b>	No data available
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#### Other adverse effects

#### Product:

<b>Ozone-Depletion Potential :</b>	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
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<b>Additional ecological information :</b>	No data available
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## 13. Disposal Considerations

### Disposal methods

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

## 14. Transport Information

### International Regulations

<b>UNRTDG</b>	Not regulated as a dangerous good
<b>IATA-DGR</b>	Not regulated as a dangerous good
<b>IMDG-Code</b>	Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not applicable for product as supplied.

<b>Domestic regulation</b> <b>49 CFR</b>	Not regulated as a dangerous good
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<b>Special precautions for user</b>	Remarks : Not classified as dangerous in the meaning of transport regulations
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## 15. Regulatory Information

### **CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

<b>SARA 311/312 Hazards :</b>	Respiratory or skin sensitization Skin corrosion or irritation Serious eye damage or eye irritation
<b>SARA 313 :</b>	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.
<b>TSCA list</b>	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.

## 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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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## Buffer VW2 MSDS

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

#### Identification of the substance or mixture

**Product Name** Buffer VW2  
**Product number**  
**Product Description** Kit Component

#### Manufacturer/Supplier

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

### 2. Composition/information on ingredients

#### Composition:

Name	Components
Mixture	No hazardous ingredients

### 3. Hazards Identification

#### **GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

#### **GHS label elements**

Not a hazardous substance or mixture.

#### **Other hazards**

None known.

### 4. First Aid Measures

**General Advice** Show this safety data sheet to the doctor in attendance.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Ingestion** Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

**Most important symptoms and effects** Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation \

**Notes to Physician** Treat symptomatically

### 5. Fire Fighting Measures

**Suitable extinguishing media :** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

**Hazardous combustion products :** Carbon oxides Nitrogen oxides (NOx) Sulfur oxides

**Further information :** 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

**6. Accidental Release Measures**

**Personal Precautions** Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

**Environmental Precautions** Prevent further leakage or spillage if safe to do so.

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal.

**7. Handling and Storage**

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store near combustible materials. Incompatible Materials. Reducing Agent. Strong acids. Strong reducing agents. Combustible material

**8. Exposure Controls, Personal Protection**

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

**Personal protective equipment**

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).

Eye protection : Safety glasses

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.

**9. Physical and Chemical Properties**

<b>Physical State</b>	liquid
<b>Appearance</b>	No data available
<b>Odor</b>	characteristic
<b>Odor Threshold</b>	No information available
<b>pH</b>	7.5
<b>Melting Point/Range</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	1.01 g/cm3
<b>Partition coefficient; n-octanol/water</b>	No data available



<b>Autoignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	Not applicable

#### 10. Stability and Reactivity

<b>Reactivity :</b>	No decomposition if stored and applied as directed.
<b>Chemical stability :</b>	No decomposition if stored and applied as directed.
<b>Conditions to avoid :</b>	No data available
<b>Incompatible materials :</b>	No data available
<b>Hazardous decomposition products :</b>	No decomposition if stored and applied as directed.

#### 11. Toxicological Information

##### Acute toxicity

Not classified based on available information.

##### Product:

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

##### Serious eye damage/eye irritation

Not classified based on available information.

Product:	Remarks : The product causes irritation of eyes, skin and mucous membranes.
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##### Respiratory or skin sensitization

##### Skin sensitization

Not classified based on available information.

##### Respiratory sensitization

Not classified based on available information.

##### Product:

Remarks : No data available

##### Germ cell mutagenicity

Not classified based on available information.

##### Carcinogenicity

Not classified based on available information.

##### 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.

##### OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### 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.

##### Reproductive toxicity

Not classified based on available information. STOT-single exposure  
Not classified based on available information.

##### Components:

##### sodium dodecyl sulphate:

Routes of exposure :	Inhalation
Assessment :	May cause respiratory irritation.

##### STOT-repeated exposure

Not classified based on available information.

##### Aspiration toxicity

Not classified based on available information.

##### Further information

##### Product:

Remarks :	No data available
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#### 12. Ecological Information

##### Ecotoxicity

##### Product:

Toxicity to fish :	Remarks: No data available
Toxicity to algae/aquatic plants :	Remarks: No data available
Toxicity to microorganisms :	Remarks: No data available

##### Components: sodium dodecyl sulphate:

Toxicity to fish :	No data available
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Toxicity to algae/aquatic plants :	No data available
Persistence and degradability :	No data available
<b>Bioaccumulative potential</b>	
<b>Product:</b>	
Bioaccumulation :	Remarks: No data available
Mobility in soil :	No data available

**Other adverse effects**

**Product:**

Ozone-Depletion Potential :	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This <b>product</b> neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
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Additional ecological information :	No data available
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**13. Disposal Information**

**Waste Disposal Methods**

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

**14. Transport Information**

**International Regulations**

UNRTDG	Not regulated as a dangerous good
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IATA-DGR	Not regulated as a dangerous good
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IMDG-Code	Not regulated as a dangerous good
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**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation**

49 CFR	Not regulated as a dangerous good
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**Special precautions for user**

Remarks :	Not classified as dangerous in the meaning of transport regulations.
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**15. Regulatory Information**

**CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

<b>SARA 311/312 Hazards :</b>	No SARA Hazards
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<b>SARA 313 :</b>	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.
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<b>TSCA list</b>	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.
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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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**Buffer VTE MSDS**

**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Buffer VTE  
**Product number**  
**Product Description** Kit Component

**Manufacturer/Supplier**

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

**2. Composition/information on ingredients**

**Composition:**

Name	Components
Mixture	No hazardous ingredients

**3. Hazards Identification**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards**

None known.

**4. First Aid Measures**

**General Advice** Show this safety data sheet to the doctor in attendance.  
**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.  
**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.  
**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.  
**Ingestion** Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.  
**Most important symptoms and effects** Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation \

**Notes to Physician** Treat symptomatically

**5. Fire Fighting Measures**

**Suitable extinguishing media :** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
**Specific hazards during fire fighting :** Exposure to decomposition products may be a hazard to health.  
**Hazardous combustion products :** Carbon oxides Nitrogen oxides (NOx) Sulfur oxides

**Further information :** 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

## 6. Accidental Release Measures

**Personal Precautions** Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

**Environmental Precautions** Prevent further leakage or spillage if safe to do so.

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal.

## 7. Handling and Storage

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store near combustible materials. Incompatible Materials. Reducing Agent. Strong acids. Strong reducing agents. Combustible material

## 8. Exposure Controls, Personal Protection

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Personal protective equipment

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).

Eye protection :

Safety glasses

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.

## 9. Physical and Chemical Properties

<b>Physical State</b>	liquid
<b>Appearance</b>	No data available
<b>Odor</b>	characteristic
<b>Odor Threshold</b>	No information available
<b>pH</b>	8.3
<b>Melting Point/Range</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	No data available
<b>Partition coefficient; n-octanol/water</b>	No data available

<b>Autoignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	Not applicable

#### 10. Stability and Reactivity

<b>Reactivity :</b>	No decomposition if stored and applied as directed.
<b>Chemical stability :</b>	No decomposition if stored and applied as directed.
<b>Conditions to avoid :</b>	No data available
<b>Incompatible materials :</b>	No data available
<b>Hazardous decomposition products :</b>	No decomposition if stored and applied as directed.

#### 11. Toxicological Information

##### Acute toxicity

Not classified based on available information.

##### Product:

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

##### Serious eye damage/eye irritation

Not classified based on available information.

Product:	Remarks : The product causes irritation of eyes, skin and mucous membranes.
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##### Respiratory or skin sensitization

##### Skin sensitization

Not classified based on available information.

##### Respiratory sensitization

Not classified based on available information.

##### Product:

Remarks : No data available

##### Germ cell mutagenicity

Not classified based on available information.

##### Carcinogenicity

Not classified based on available information.

##### 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.

##### OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### 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.

##### Reproductive toxicity

Not classified based on available information. STOT-single exposure  
Not classified based on available information.

##### Components:

##### sodium dodecyl sulphate:

Routes of exposure :	Inhalation
Assessment :	May cause respiratory irritation.

##### STOT-repeated exposure

Not classified based on available information.

##### Aspiration toxicity

Not classified based on available information.

##### Further information

##### Product:

Remarks :	No data available
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#### 12. Ecological Information

##### Ecotoxicity

##### Product:

Toxicity to fish :	Remarks: No data available
Toxicity to algae/aquatic plants :	Remarks: No data available
Toxicity to microorganisms :	Remarks: No data available

##### Components: sodium dodecyl sulphate:

Toxicity to fish :	No data available
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Toxicity to algae/aquatic plants :	No data available
Persistence and degradability :	No data available
<b>Bioaccumulative potential</b>	
<b>Product:</b>	
Bioaccumulation :	Remarks: No data available
Mobility in soil :	No data available

**Other adverse effects**

**Product:**

Ozone-Depletion Potential :	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This <b>product</b> neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
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Additional ecological information :	No data available
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**13. Disposal Information**

**Waste Disposal Methods**

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

**14. Transport Information**

**International Regulations**

UNRTDG	Not regulated as a dangerous good
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IATA-DGR	Not regulated as a dangerous good
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IMDG-Code	Not regulated as a dangerous good
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**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation**

49 CFR	Not regulated as a dangerous good
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**Special precautions for user**

Remarks :	Not classified as dangerous in the meaning of transport regulations.
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**15. Regulatory Information**

**CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

<b>SARA 311/312 Hazards :</b>	No SARA Hazards
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<b>SARA 313 :</b>	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.
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<b>TSCA list</b>	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.
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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.

Abbreviations and acronyms:

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**IMDG:** International Maritime Code for Dangerous Goods

**DOT:** US Department of Transportation

**IATA:** International Air Transport Association

**ACGIH:** American Conference of Governmental Industrial Hygienists

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**Proteinase K Powder MSDS**

**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Proteinase K Powder  
**Product number**  
**Product Description** Kit Component

**Manufacturer/Supplier**

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

**2. Composition/information on ingredients**

**Composition:**

Name	CAS No.
Proteinase K	39450-01-6

**3. Hazards Identification**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Respiratory sensitization : Category 1

**GHS label elements**

Hazard pictograms :

Signal Word :

Hazard Statements :

Danger

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statements :

**Prevention:**

P261 Avoid breathing mist or vapors.

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

P285 In case of inadequate ventilation wear respiratory protection.

**Response:**

P304 + P341 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.

**Other hazards**

None known.

**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. Keep respiratory tract clear. 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 : 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 : May cause allergy or asthma symptoms or breathing difficulties if inhaled. No information available.  
Notes to physician : No information available

**5. Fire Fighting Measures**

**Suitable extinguishing media :** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

**Hazardous combustion products :** Carbon oxides Nitrogen oxides (NOx) Sulfur oxides

**Further information :** 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

## 6. Accidental Release Measures

**Personal Precautions** Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

**Environmental Precautions** Prevent further leakage or spillage if safe to do so.

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal.

## 7. Handling and Storage

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store near combustible materials. Incompatible Materials. Reducing Agent. Strong acids. Strong reducing agents. Combustible material

## 8. Exposure Controls, Personal Protection

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Personal protective equipment

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).

Eye protection :

Safety glasses

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.

## 9. Physical and Chemical Properties

<b>Physical State</b>	Solid
<b>Appearance</b>	White
<b>Odor</b>	characteristic
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
Upper	No data available

<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	No data available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	Not applicable

#### 10. Stability and Reactivity

<b>Reactivity :</b>	No decomposition if stored and applied as directed.
<b>Chemical stability :</b>	No decomposition if stored and applied as directed.
<b>Conditions to avoid :</b>	No data available
<b>Incompatible materials :</b>	No data available
<b>Hazardous decomposition products :</b>	No decomposition if stored and applied as directed.

#### 11. Toxicological Information

**Acute toxicity**  
Not classified based on available information.

<b>Product:</b>	
Acute oral toxicity :	Remarks: No data available
Acute inhalation toxicity :	Remarks: No data available
Acute dermal toxicity :	Remarks: No data available

**Serious eye damage/eye irritation**  
Not classified based on available information.

<b>Product:</b>	Remarks : The product causes irritation of eyes, skin and mucous membranes.
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#### **Respiratory or skin sensitization**

<b>Skin sensitization</b>	Not classified based on available information.
<b>Respiratory sensitization</b>	Not classified based on available information.
<b>Product:</b>	Remarks : No data available
<b>Germ cell mutagenicity</b>	Not classified based on available information.
<b>Carcinogenicity</b>	Not classified based on available information.
<b>IARC</b>	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.
<b>OSHA</b>	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
<b>NTP</b>	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.
<b>Reproductive toxicity</b>	Not classified based on available information. STOT-single exposure Not classified based on available information.

<b>Components:</b>	
<b>sodium dodecyl sulphate:</b>	
Routes of exposure :	Inhalation
Assessment :	May cause respiratory irritation.

**STOT-repeated exposure** Not classified based on available information.  
**Aspiration toxicity** Not classified based on available information.

<b>Further information</b>	
<b>Product:</b>	
Remarks :	No data available

#### 12. Ecological Information

<b>Ecotoxicity</b>	Do not empty into drains.
<b>Persistence and Degradability</b>	Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.  
**Mobility** Will likely be mobile in the environment due to its water

### 13. Disposal Information

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate class

### 14. Transport Information

**International Regulations**  
**UNRTDG** Not regulated as a dangerous good  
**IATA-DGR** Not regulated as a dangerous good  
**IMDG-Code** Not regulated as a dangerous good

### 15. Regulatory Information

**U.S. Federal Regulations**  
**SARA 313** Not applicable  
**SARA 311/312 Hazard Categories** See section 2 for more information  
**CWA (Clean Water Act)** Not applicable  
**Clean Air Act** Not applicable  
**OSHA - Occupational Safety and Health Administration**  
Not applicable  
**CERCLA** Not applicable  
**California Proposition 65** This product does not contain any Proposition 65 chemicals.  
**U.S. State Right-to-Know Regulations** Not applicable  
**U.S. Department of Transportation**  
Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N  
  
**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.  
  
**Other International Regulations**  
Mexico - Grade No information available  
**Authorisation/Restrictions according to EU REAC**  
1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)  
Not applicable  
  
**Safety, health and environmental regulations/legislation specific for the substance or mixture**  
Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements  
Not applicable

### 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.

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

**NFPA:** National Fire Protection Association (USA)  
**HMIS:** Hazardous Materials Identification System (USA)  
**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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**Proteinase K Buffer MSDS**

**1. Identification of the Substance/Mixture and Company**

**Identification of the substance or mixture**

**Product Name** Proteinase K Buffer  
**Product number**  
**Product Description** Kit Component

**Manufacturer/Supplier**

VitroVivo Biotech, LLC. 405 E Gude Dr. Suite 214, Rockville, MD 20850  
Phone: 301-500-0499 Toll free: 1-800-260-9817 Fax: 844-248-6208

**2. Composition/information on ingredients**

**Composition:**

Name	Components
Mixture	No hazardous ingredients

**3. Hazards Identification**

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards**

None known.

**4. First Aid Measures**

**General Advice** Show this safety data sheet to the doctor in attendance.  
**If inhaled :** Move to fresh air. 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 :** 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 :**  
No information available.  
**Notes to physician :** No information available.

**5. Fire Fighting Measures**

**Suitable extinguishing media :** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
**Specific hazards during fire fighting :** Exposure to decomposition products may be a hazard to health.  
**Hazardous combustion products :** No hazardous combustion products are known  
**Further information :** 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

**6. Accidental Release Measures**

**Personal Precautions** Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing

**Environmental Precautions** Do not allow uncontrolled discharge of product into the environment.

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal.

## 7. Handling and Storage

**Advice on protection against fire and explosion :** Normal measures for preventive fire protection.

**Advice on safe handling :** For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.

**Further information on storage stability** No decomposition if stored and applied as directed.

## 8. Exposure Controls, Personal Protection

### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### Personal protective equipment

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).

**Eye protection :**

Safety glasses

**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. When using do not eat, drink or smoke.

## 9. Physical and Chemical Properties

<b>Physical State</b>	liquid
<b>Appearance</b>	No data available
<b>Odor</b>	characteristic
<b>Odor Threshold</b>	No information available
<b>pH</b>	8.0
<b>Melting Point/Range</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Relative density :</b>	No data available
<b>Density</b>	No data available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	Not applicable
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	Not applicable

## 10. Stability and Reactivity

**Reactivity :** No decomposition if stored and applied as directed.  
**Chemical stability :** No decomposition if stored and applied as directed.  
**Conditions to avoid :** No data available

**Incompatible materials :** No data available  
**Hazardous decomposition products :** No decomposition if stored and applied as directed.

## 11. Toxicological Information

### Acute toxicity

Not classified based on available information.

### Product:

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

### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

Not classified based on available information.

### Product:

Remarks : No data available

#### Germ cell mutagenicity

Not classified based on available information.

#### Carcinogenicity

Not classified based on available information.

### 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.

### OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

### 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.

### Reproductive toxicity

Not classified based on available information. STOT-single exposure  
Not classified based on available information.

### STOT-repeated exposure

Not classified based on available information.

### Aspiration toxicity

Not classified based on available information.

### Further information

#### Product:

Remarks : No data available

## 12. Ecological Information

### Ecotoxicity

#### Product:

Toxicity to fish : Remarks: No data available  
Toxicity to algae/aquatic plants : Remarks: No data available  
Toxicity to microorganisms : Remarks: No data available

### Persistence and degradability

No data available

### Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: No data available  
Mobility in soil No data available

### Other adverse effects

#### Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This **product** neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

## 13. Disposal Information

### Disposal methods

Waste from residues : Dispose of contents/container in accordance with local regulation.  
Contaminated packaging : Empty containers should be taken to an approved waste handling site



for recycling or disposal.

#### 14. Transport Information

##### International Regulations

**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**

Not applicable for product as supplied.

##### 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.

#### 15. Regulatory Information

##### CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

##### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

##### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards :** No SARA Hazards

**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.

**TSCA list** No substances are subject to a Significant New Use Rule.  
No substances are subject to TSCA 12(b) export notification requirements.

#### 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.

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

**NFPA:** National Fire Protection Association (USA)

**HMIS:** Hazardous Materials Identification System (USA)

**LC50:** Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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