**MATERIAL SAFETY DATA SHEET**

**VIVANTIS TECHNOLOGIES SDN BHD**
**REVONGEN CORPORATION CENTER**

Document No.: MSDSrev05_TrisBuffer
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## SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PB0852-1L; PB0853-1L; PB0854-1L; PB0855-1L; PB0858-1L; PB0898-1L

Product Name: 1M Tris Buffer pH7.4; 1M Tris Buffer pH7.0; 1M Tris Buffer pH7.5; 1M Tris buffer pH8.0; 1M Tris Buffer, pH6.8; 1.5M Tris Buffer, pH8.8

Intended Use:
For research use only. Not for use in diagnostic procedures.


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## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No. | EC No. | % |
|---|---|---|---|
| Tris(hydroxymethyl)aminomethane | 77-86-1 | 201-064-4 | 10-15 |
| Hydrochloric acid | 7647-01-0 | 231-595-7 | 1-3 |

See actual entry in RTECS for complete information.

## SECTION 3: HAZARDS IDENTIFICATION

**GHS Classification**

Skin sensitization – Category 2
Eye irritation – Category 2

**GHS Label elements, including precautionary statements**

Signal word: Warning

**Hazard statements**

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H303 May be harmful if swallowed

**Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P302+ P352 If on skin, wash with plenty of soap and water.
P304 + P340 If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**SECTION 4: FIRST-AID MEASURES**

In case of eye contact, immediately flush eyes with copious amounts of water for at least 15 minutes and consult a physician.
In case of skin contact, immediately wash off with soap and plenty of water. Removing all contaminated clothes and shoes.
In case of inhalation, move to fresh air. If breathing is difficult, give oxygen.
In case of ingestion, clean mouth with water and afterwards drink plenty of water. Call a poison center or doctor/physician if exposed or you feel unwell.

**SECTION 5: FIRE FIGHTING MEASURES**

Not flammable.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use dry chemical, carbon dioxide, water spray or regular foam.
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and fully protective gear.

Hazardous decomposition products formed under fire conditions: Carbon oxides.

| | |
|---|---|
| Flash point: | Not determined. |
| Explosion data – sensitivity to mechanical impact: | Not sensitive. |
| Explosion data – sensitivity to static discharge: | Not sensitive. |

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

For personal protection, wear personal protective equipment. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
For environmental precautions, prevent further leakage or spillage if safe to do so.
For cleaning up, absorb on sand vermiculite and place in closed containers for disposal.

## SECTION 7: HANDLING AND STORAGE

Handle in accordance with good industrial hygiene and safety practice. Protect from light.
Keep container tightly closed in a cool, dry and well-ventilated place.
Incompatible with bases and strong oxidizing agents.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| Component | Control parameters |
|---|---|
| Hydrochloric acid | IDLH (NIOSH IDLH): 50 ppm<br>Ceiling (NIOSH IDLH): 5 ppm<br>Ceiling (NIOSH IDLH): 7 $mg/m^3$ |

| | |
|---|---|
| Eye/Face Protection: | Tightly fitting safety goggles. |
| Skin and Body Protection: | Wear protective gloves/clothing |
| Respiratory Protection: | If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA Approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. |

Use engineering measures such as shower, eyewash stations and ventilation system.
Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| Appearance: | Clear/Colorless |
| Physical state: | Liquid |
| Odor: | No information available |
| Odor threshold: | No information available |
| Density: | No information available |
| pH: | pH 7.4 (PB0852), pH 7.0 (PB0853), pH 7.5 (PB0854), pH 8.0 (PB0855), pH 6.8 (PB0858), pH 8.8 (PB0898) |
| Melting point: | No information available |
| Freezing point: | No information available |
| Initial Boiling point: | No information available |
| Boiling point: | No information available |
| Flash point: | Not applicable |
| Autoignition temperature: | No data available |
| Decomposition temperature: | No information available |
| Upper Flammability limit in air: | No data available |
| Lower Flammability limit in air: | No data available |
| Explosive properties: | No information available |
| Oxidizing properties: | No information available |
| Solubility: | Soluble in water |
| Partition coefficient (n-octanol/water): | No data available |
| Vapor pressure: | No data available |
| Vapor density: | No data available |
| Evaporation rate: | No data available |
| Specific gravity: | No data available |
| Viscosity: | No information available |

## SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

| | |
|---|---|
| Materials to avoid: | Bases, strong oxidizing agents. |
| Hazardous decomposition products: | Carbon oxides. |
| Hazardous polymerization: | Hazardous polymerization does not occur. |
| Conditions to avoid: | None known based on information supplied. |

## SECTION 11: TOXICOLOGICAL INFORMATION

**Acute Toxicity**

**Tris**

| | |
|---|---|
| Oral LD50: | Rat – 5900 mg/kg |
| Inhalation LC50: | - |
| Dermal LD50: | - |

**Hydrochloric acid**

| | |
|---|---|
| Oral LD50: | Rat – 700 mg/kg |
| Inhalation LC50: | Rat – 3124 ppm – 1h |
| Dermal LD50: | Rabbit – 5010 mg/kg |

**Chronic toxicity**

| | |
|---|---|
| Chronic toxicity: | No known effect based on information supplied. |
| Target organ effects: | None known. |

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

The environmental impact of this product has not been fully investigated.

Hydrochloric acid

| | |
|---|---|
| LC50: | Gambusia affinis – 282 mg/L – 96 hrs |

## SECTION 13: DISPOSAL CONSIDERATIONS

Dispose waste material in accordance with federal, state and local environmental regulations.
For contaminated packaging, dispose as waste material.

## SECTION 14: TRANSPORT INFORMATION

**IATA**

Not regulated.

**DOT**

Not regulated.

**SECTION 15: REGULATORY INFORMATION**

**REACH Title VII Restrictions:**

No information available

**Hydrochloric acid**

| | |
|---|---|
| Dangerous substances: | ≥0.1% weight |
| Organic solvents: | Not applicable |
| Harmful substances whose names are to be indicated on the label: | Not applicable |
| Pollution release and transfer registry (Class II): | Not applicable |
| Pollution release and transfer registry (Class I): | Not applicable |
| Poison and deleterious substance control law: | Not applicable |

ISHA-harmful substances Prohibited for manufacturing, importing, transferring, or supplying:
Not applicable

| | |
|---|---|
| ISHA-harmful substances requiring permission: | Not applicable |
| Toxic chemical classification listing (TCCL)-toxic chemicals: | Not applicable |
| Toxic release inventory (TRI)-Group I: | Not applicable |
| Toxic release inventory (TRI)-Group II: | Not applicable |

**International Inventories:**

| | |
|---|---|
| **TSCA** | Complies |
| **EINECS/ELINCS** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL** | Does not comply |
| **PICCS** | Complies |
| **AICS** | Complies |

**United States Federal Regulations**

**SARA 313** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 313 – Threshold values of hydrochloric acid is 1.0%

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| Acute Health Hazard | Yes |
| Chronic Health Hazard | No |
| Fire Hazard | No |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act 40 CFR 122.21 and 40 CFR 122.42).

| | |
|---|---|
| Chemical name: | Hydrochloric acid |
| CWA – Reportable Quantities: | 5000lb |
| CWA - Toxic Pollutants: | - |
| CWA - Priority Pollutants: | - |
| CWA – Hazardous Substances: | X |

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

| | |
|---|---|
| Chemical name: | Hydrochloric acid |
| HAPS data: | Present |
| VOC Chemicals: | - |
| Class 1 Ozone Depletors: | - |
| Class 2 Ozone Depletors: | - |

**CERCLA**

| | |
|---|---|
| Chemical name: | Hydrochloric acid |
| Hazardous Substances RQs: | 5000lb |
| Extremely Hazardous Substances RQs: | 5000lb |

**U.S. State Regulations**

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

**Hydrochloric acid**

| | |
|---|---|
| Massachusetts: | X |
| New Jersey: | X |
| Pennsylvania: | X |
| Illinois: | X |
| Rhode Island: | X |

**International Regulations**

**Mexico – Grade** No information available.

**WHMIS Hazard Class**

D2B Toxic materials

**SECTION 16: OTHER INFORMATION**

The information contained in this MSDS relates only to the material(s) designed and does not relate to use(s) in combination with any other material, process(es) and /or chemical reaction(s). Vivantis Technologies Sdn. Bhd. provides this information in good faith, from sources believed to be accurate; however, Vivantis assumes no liability for its accuracy or completeness, and thus shall not be held liable for any damage resulting from handling or from contact with the above product.

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