

MATERIAL SAFETY DATA SHEET

**VIVANTIS TECHNOLOGIES SDN BHD
REVONGEN CORPORATION CENTER**

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PB1110-1L; PB1140-1L

Product Name: 1X Tris Buffered Saline (TBS) Buffer; 10X Tris Buffered Saline (TBS) Buffer

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. | % |
|--------------------|-----------|-----------|-------|
| Sodium chloride | 7647-14-5 | 231-598-3 | 10-20 |
| Tris hydrochloride | 1185-53-1 | 214-684-5 | 1-10 |

See actual entry in RTECS for complete information.

SECTION 3: HAZARDS IDENTIFICATION

GHS Classification

Skin irritant – Category 2
 Eye irritant – 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

Precautionary statements

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

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SECTION 4: FIRST-AID MEASURES

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

In case of skin contact, wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

In case of inhalation, move to fresh air. If breathing becomes difficult, give oxygen.

In case of ingestion, clean mouth with water and afterwards drink plenty of water.

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, nitrogen 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, use personal protective equipment. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

For containment, prevent further leakage or spillage if safe to do so.

For cleaning up, pick up and transfer to properly labeled containers. Avoid dust formation. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: HANDLING AND STORAGE

Handle in accordance with good industrial hygiene and safety practice.

Keep containers tightly closed in a dry, cool and well-ventilated place. Hygroscopic. Protect from moisture.

Incompatible with strong oxidizing agents.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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 showers, eyewash stations and ventilation systems.
 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: | 7-9 (Diluted in 1X) |
| 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 |
| 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 |

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SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

| | |
|-----------------------------------|--|
| Materials to avoid: | Strong oxidizing agents. |
| Hazardous decomposition products: | Carbon oxides, nitrogen oxides. |
| Hazardous polymerization: | Hazardous polymerization does not occur. |
| Conditions to avoid: | No data available. |

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

| | |
|--------------------------------------|---------------------------------|
| Oral LD50: | Rat – 3 g/kg |
| Inhalation LC50: | Rat – 42 g/m ³ – 1hr |
| Dermal LD50: | Rabbit – 10g/kg |
| Other information on acute toxicity: | No data available |

Chronic Toxicity

No known effect based on information supplied.

Target organ effects: Heart

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Sodium chloride

| | |
|-------|---|
| LC50: | Fish – Pimephales promelas – 6020-7070mg/L – 96hrs |
| | Fish – Pimephales promelas – 6420-6700mg/L – 96hrs |
| | Fish – Onchorhynchus mykiss – 4747-7824mg/L – 96hrs |
| | Fish – Lepomis macrochirus – 12946mg/L – 96hrs |
| | Fish – Pimephales promelas – 7050mg/L – 96hrs |
| | Fish – Lepomis macrochirus – 5560-6080mg/L – 96hrs |
| EC50: | Water flea – Daphia magna – 1000mg/L – 48hrs |

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose waste material in accordance with all federal, state, and local regulations.

For contaminated packaging, dispose as waste material.

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SECTION 14: TRANSPORT INFORMATION

IATA

Not regulated.

DOT

Not regulated.

SECTION 15: REGULATORY INFORMATION

International Inventories:

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

United States Federal Information:

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 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).

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.

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U.S. State Regulations

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

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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