

**MATERIAL SAFETY DATA SHEET
VIVANTIS TECHNOLOGIES SDN BHD**

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PC0716-100mg; PC0716-1g
Product Name: X-Gal (5-Bromo-4-Chloro-3-Indodyl-beta-D-galactopyranoside)

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. | % | GHS Classification |
|--|-----------|-----------|-----|--|
| 5-Bromo-4-Chloro-3-Indodyl-beta-D-galactopyranoside) | 7240-90-6 | 230-640-8 | 100 | Acute Tox. (O) 4: H302 Acute Tox. (I) 4: H332 Acute Tox. (D) 4: H312 |

Synonyms: 5-bromo-4-chloro-1H-indol-3-yl-β-D-galactopyranoside

Chemical formula: C₁₄H₁₅BrClNO₆

Molecular weight: 408.6

SECTION 3: HAZARDS IDENTIFICATION

GHS Classification according to Regulation (EC) No 1272/2008 [CLP]

Acute Toxicity, Inhalation – Category 4
 Acute Toxicity, Oral – Category 4
 Acute Toxicity, Skin – Category 4

GHS Label elements, including precautionary statements



Signal word: Warning

Hazard statements

H332 Harmful if inhaled.
 H302 Harmful if swallowed.
 H312 Harmful in contact with skin

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
 P264 Wash hands thoroughly after handling.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P362+364 Take off contaminated clothing and wash it before reuse.
 P304+340 If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.

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- P312 Call a poison center or doctor if you feel unwell.
P301+312 If swallowed, call a poison center or doctor/physician if you feel unwell.
P330 Rinse mouth.
P302+352 If on skin, wash with plenty of soap and water.

Adverse Human Health Effects and Symptoms

Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation, ingestion or skin absorption.

May cause eye, skin or respiratory system irritation.

SECTION 4: FIRST-AID MEASURES

In case of eye contact, hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

In case of skin contact, wash off immediately with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In case of inhalation, move to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In case of ingestion, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do not induce vomiting unless directed to do so by medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Use water spray, alcohol-resistant foam, dry chemical spray or carbon dioxide. A solid water stream may be inefficient.

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Hazardous decomposition products formed under fire conditions: No data available.

Flash point: No data available.

Explosion data – sensitivity to mechanical impact: No data available.

Explosion data – sensitivity to static discharge: No data available.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

For personal protection, wear a NIOSH approved self-contained breathing apparatus, or respirator and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves). Avoid raising and breathing dust and provide adequate ventilation.

For environmental precautions, take steps to avoid release into the environment, if safe to do so.

For cleaning up, contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

SECTION 7: HANDLING AND STORAGE

Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid prolonged or repeated exposure.

Keep containers tightly closed. Store in accordance with information listed on the product insert.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | |
|------------------------|---|
| Respiratory protection | NIOSH approved respirator, as conditions warrant. |
| Eye/Face protection | Wear eye protection such as safety glasses. |
| Hand protection | Compatible chemical-resistant gloves. |
| Body protection | Wear lab coat. |

Use engineering measures such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------------------|--------------------------|
| Appearance: | Crystalline |
| Physical state: | Solid |
| Odor: | No information available |
| Odor threshold: | No information available |
| Density: | No information available |
| pH: | No information available |
| Melting point: | No information available |
| Freezing point: | No information available |
| Initial Boiling point: | No information available |
| Boiling point: | No information available |
| Flash point: | No information available |
| Autoignition temperature: | No information available |
| Decomposition temperature: | No information available |

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| | |
|--|--|
| Upper Flammability limit in air: | No data available |
| Lower Flammability limit in air: | No data available |
| Oxidizing properties: | No information available |
| Solubility: | ~0.5 mg/ml in 1:1 DMSO:PBS (pH 7.2); ~30 mg/ml in DMSO & DMF |
| Partition coefficient (n-octanol/water): | No data available |
| Vapor pressure: | No information available |
| Vapor density: | No data available |
| Evaporation rate: | No data available |
| Specific gravity: | No data available |
| Viscosity: | No information available |
| Specific gravity: | 1.080 |
| Solubility: | No data available |
| Viscosity: | No information available |
| Vapor density: | No data available |
| Density: | No data available |
| Partition coefficient (n-octanol/water): | No data available |
| Evaporation rate: | No data available |

SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

| | |
|-----------------------------------|---|
| Materials to avoid: | Strong oxidizing agents |
| Hazardous decomposition products: | Carbon dioxide, carbon monoxide, hydrogen bromide gas, hydrogen chloride gas, nitrogen oxides |
| Hazardous polymerization: | Hazardous polymerization does not occur. |
| Conditions to avoid: | None known based on information supplied |

SECTION 11: TOXICOLOGICAL INFORMATION

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

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

| | |
|-------------------------------------|--------------------|
| Persistence and biodegradability: | No data available. |
| Bioaccumulative potential: | No data available. |
| Mobility in soil: | No data available. |
| Results of PBT and vPvB assessment: | No data available. |

SECTION 13: DISPOSAL CONSIDERATIONS

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

SECTION 14: TRANSPORT INFORMATION

DOT

Not dangerous goods.

ADR/RID

Not dangerous goods.

IATA

Not dangerous goods.

SECTION 15: REGULATORY INFORMATION

International Inventories

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

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U.S Federal Regulations

SARA 313 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulation, Part 372.

SARA 311/312 Hazard Categories

| | |
|-----------------------------------|----|
| Acute Health Hazard | No |
| 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 pollutant (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals:

International Regulations

Mexico – Grade No information available.

Canada

WHMIS Hazard Class

Not determined.

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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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