

MATERIAL SAFETY DATA SHEET

**VIVANTIS TECHNOLOGIES SDN BHD
REVONGEN CORPORATION CENTER**

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: GF-SD-005; GF-SD-025

Product Name: GF-1 Soil Sample DNA Extraction Kit with 5 preps and 25 preps

Description: DNA extraction kit for soil samples without the need for precipitation or organic extraction.

Intended Use:

For research use and laboratory use only.

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

All concentrations are below the acceptable limits specific to each chemical.

Component(s)	Hazardous Ingredient(s)	CAS No.	Concentration
SL1 Buffer	Sodium Dodecyl Sulfate	151-21-3	≤1%
SL2 Buffer	No hazardous substance or mixture in the ingredients	-	-
SB Buffer	Guanidine Thiocyanate	593-84-0	≥30% - <60%
SPW Wash Buffer 1	No hazardous substance or mixture in the ingredients	-	-
SPW Wash Buffer 2	No hazardous substance or mixture in the ingredients	-	-
Elution Buffer	No hazardous substance or mixture in the ingredients	-	-

Acute Effects

The ingredients in this diagnostic kit are irritants to skin, eyes and respiratory system. They are harmful if it comes into contact with the skin and toxic if ingested.

Chronic Effects

Hazardous in case of ingestion.

SECTION 3: HAZARDS IDENTIFICATION

GHS Classification

The extraction kit consists of individual ingredients for different components of kit.

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Component(s)	Hazardous Ingredient(s)	CAS No.	Concentration
SL1 Buffer	Sodium Dodecyl Sulfate	151-21-3	≤1%
<p>Classification (Regulation (EC) No. 1272/2008). Acute Toxicity 4; H332 Skin Irritation 2; H315 Serious Eye Damage 1; H318 STOT – Respiratory System 3; H335 Chronic aquatic toxicity 3; H412</p>			
<p>Classification (67/548/EEC) No information available.</p>			

Component(s)	Hazardous Ingredient(s)
SL2 Buffer	No hazardous substance or mixture in the ingredients
<p>Classification (Regulation (EC) No. 1272/2008) Not a hazardous substance or mixture.</p>	
<p>Classification (67/548/EEC) Not a hazardous substance or mixture.</p>	

Component(s)	Hazardous Ingredient(s)	CAS No.	Concentration
SB Buffer	Guanidine Thiocyanate	593-84-0	≥30% - <60%
<p>Classification (Regulation (EC) No. 1272/2008) Acute Toxicity 4; H302 Acute Toxicity 4; H332 Hazardous to aquatic environment-chronic hazard 3; H412</p>			
<p>Classification (67/548/EEC) No information available.</p>			

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Component(s)	Hazardous Ingredient(s)
SPW Wash Buffer 1	No hazardous substance or mixture in the ingredients
Classification (Regulation (EC) No. 1272/2008) Not a hazardous substance or mixture.	
Classification (67/548/EEC) Not a hazardous substance or mixture.	

Component(s)	Hazardous Ingredient(s)
SPW Wash Buffer 2	No hazardous substance or mixture in the ingredients
Classification (Regulation (EC) No. 1272/2008) Not a hazardous substance or mixture.	
Classification (67/548/EEC) Not a hazardous substance or mixture.	

Component(s)	Hazardous Ingredient(s)
Elution Buffer	No hazardous substance or mixture in the ingredients
Classification (Regulation (EC) No. 1272/2008) Not a hazardous substance or mixture.	
Classification (67/548/EEC) Not a hazardous substance or mixture.	

Classification of the whole kit according to CLASS regulation 2013

Acute toxicity, Category 4, Oral;	H302: Harmful if swallowed
Acute toxicity, Category 2, Inhalation;	H332: Harmful if inhaled
Chronic aquatic toxicity, Category 3;	H412: Harmful to aquatic life with long lasting effects

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Label elements

Labeling according to regulation (EC) No. 1272/2008

Hazard pictograms



Signal word

Warning

Hazard statements

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects

Precautionary statements

Prevention:

P210	Keep away from heat
P261	Avoid breathing dust / fume / gas / mist / vapors / spray
P264	Wash skin thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P273	Avoid release to the environment
P280	Wear protective gloves

Response:

P304 + P340 + P312	If inhaled, remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
P501	Dispose of contents/container to an approved waste disposal plant.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Other hazards

Not applicable

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SECTION 4: FIRST-AID MEASURES

In case of contact with eyes, immediately flush with copious amounts of water for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do.

In case of contact with skin, immediately wash with soap and copious amounts of water for several minutes. Take off immediately all contaminated clothing.

In case of ingestion, wash out mouth with water provided the person is conscious. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician immediately.

Notes to physician are that the first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media

Suitable: Alcohol resistant foam, carbon dioxide and dry chemical

Unsuitable: High volume water jet

Do not allow run-off from firefighting to enter drains or water courses.

Wear self-contained breathing apparatus and protective clothing and equipment to prevent contact with skin and eyes for firefighting.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

For safety reasons in case of fire, cans should be stored in separately in closed containments.

Use a water spray to cool fully closed containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear the protective clothing, rubber gloves and mask. Wear self-contained breathing apparatus, rubber boots and goggles if necessary.

Environmental Precautions

Do not let product enter drains. Prevent further leakage or spillage if safe to do so.

If the product contaminates rivers and lakes or drains inform respective authorities.

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Measures for Cleaning / Collecting

Soak up with inert absorbent material: sand, silica gel, acid binder, universal binder, sawdust.

Collect spilled liquid with liquid-binding material or inert absorbent and place in closed container for disposal.

Dispose of in accordance with federal, state and local environmental regulations.

Wash spill site after material pickup is complete.

SECTION 7: HANDLING AND STORAGE

Handling

Good laboratory techniques should be used when handling. Do not eat, drink, smoke or apply cosmetics in laboratory areas. Do not pipette reagents or samples by mouth. Use reagents according to the product insert.

Work under hood or open-air space. Do not inhale substance / mixture. Avoid generation of vapors / aerosols.

Storage

Store all components as directed in the product insert. Keep tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Wear appropriate personal protective equipment when working with components or samples, including laboratory coats, disposable gloves and eye protection. Avoid hand and mouth contact. Wash hands as soon as possible after handling components or samples.

Handle in accordance with good industrial hygiene and safety practice.

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Sodium Dodecyl Sulphate

Environmental Compartment	Value
Fresh Water	0.176 mg/L
Marine Water	0.0176 mg/L
Fresh Water Sediment	6.97 mg/L
Marine Sediment	0.697 mg/L
Soil	1.29 mg/L

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Exposure Controls

Respiratory Protection	In case of insufficient ventilation wear respirators and components tested and approved under appropriate government standards.
Hand Protection	Wear suitable protective gloves. Gloves material: compatible chemical-resistant gloves; nitrile rubber gloves.
Eye & Face Protection	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin & Body Protection	Wear suitable protective clothing and impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the workplace.

Environmental Exposure Controls

Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information for SL1 Buffer, SL2 Buffer, SB Buffer, SPW Wash Buffer 1, SPW Wash Buffer 2 and Elution Buffer

Appearance:	Liquid, Colorless
Odor:	No odor
pH:	SL1 Buffer: pH8 SL2 Buffer: pH3-5 SB Buffer: pH6-8 SPW Wash Buffer 1: pH8 SPW Wash Buffer 2: pH7-9 Elution Buffer: pH8-9
Melting Point:	No information available
Boiling Point:	No information available
Flash Point:	No information available
Autoignition Temperature:	No information available
Decomposition Temperature:	No information available
Evaporation rate:	No information available
Flammability:	No information available
Upper Explosion Limit:	No information available
Lower Explosion Limit:	No information available
Vapor Pressure:	No information available
Relative Density:	No information available
Specific Gravity:	No information available
Water Solubility:	All buffer soluble in water

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Partition coefficient: n-octanol/water:	No information available
Explosive Properties:	Not classified as explosive
Oxidizing Properties:	Not classified as oxidizing
Other information:	No information available

SECTION 10: STABILITY AND REACTIVITY

The contents of the kit are stable under normal handling and storage conditions as stated in the product insert until the expiration date indicated on the corresponding label.

Reactivity:	No dangerous reaction known under conditions of normal use.
Possibility of hazardous reactions:	Contact with acids liberates very toxic gas. No decomposition if stored and applies as directed. Vapors may form explosive mixture with air. No decomposition if stored and applied as directed
Conditions to avoid:	Exposure to light and moisture. Heat, flames and sparks.
Incompatible materials:	Strong acids and oxidizing agents. Cyanide.
Polymerization:	No data available.
Hazardous decomposition products:	Carbon dioxides, sulphur dioxides, sodium dioxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Information for Sodium Dodecyl Sulfate (SL1 Buffer)

Acute Toxicity

Acute oral toxicity:	LD50 Oral (Rat): 1.200 mg/kg
Acute inhalation toxicity:	No information available
Acute dermal toxicity:	LD50 Dermal (Rat, male and female): >2.001 mg/kg

Skin corrosion / irritation:	Causes skin irritation
Serious eye damage / eye irritation:	Causes serious eye damage
Respiratory or skin sensitization:	Not classified based on available information
Germ cell mutagenicity:	Not classified based on available information
Carcinogenicity effects:	Not classified based on available information
Reproductive toxicity:	Not classified based on available information
Aspiration toxicity:	Not classified based on available information
STOT – Single exposure:	May cause respiratory irritation.
STOT – Repeated exposure:	Not classified based on available information

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Information for Guanidine Thiocyanate (SB Buffer)

Acute Toxicity

Acute oral toxicity: LD50 Oral (Rat): 593 mg/kg
 Acute inhalation toxicity: Acute toxicity estimate: 1.5 mg/L; Test atmosphere: dust/mist
 Acute dermal toxicity: Acute toxicity estimate: 1100 mg/kg

Skin corrosion / irritation: No data available
 Serious eye damage / eye irritation: No data available
 Respiratory or skin sensitization: No data available
 Germ cell mutagenicity: No data available
 Carcinogenicity effects: No data available
 Reproductive toxicity: Not classified based on available information
 Aspiration 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

Information for SL2 Buffer, SPW Wash Buffer 1, SPW Wash Buffer 2 and Elution Buffer

Acute Toxicity: Not classified based on available information
 Skin corrosion / irritation: Not classified based on available information
 Serious eye damage / eye irritation: Not classified based on available information
 Respiratory or skin sensitization: Not classified based on available information
 Germ cell mutagenicity: Not classified based on available information
 Carcinogenicity effects: Not classified based on available information
 Reproductive toxicity: Not classified based on available information
 Aspiration 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

SECTION 12: ECOLOGICAL INFORMATION

The extraction kit contains **Sodium Dodecyl Sulfate (SL1 Buffer) Guanidine Thiocyanate (SB Buffer)** known to be hazardous to the environment or not degradable in wastewater treatment plants. Self-assessment: Hazardous for water. Do not allow product or large quantities of it to reach ground water, water course or sewage system.

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Toxicity

Guanidine Thiocyanate

Fish: LC50 (Poecilia reticula (guppy)): 89.1 mg/L; Exposure time: 96 hr

Daphnia and other aquatic invertebrates: EC50 (Daphnia (water flea)): 42.4 mg/L; Exposure time: 48hr

Chronic aquatic toxicity:

Harmful to aquatic life with long lasting effects

Toxicity data on soil:

Not expected to absorb on soil

Other organisms relevant to the environment:

No data available

Sodium Dodecyl Sulfate

Fish: LC50 (Leuciscus idus (Golden orfe)): 29 mg/L

LC50 (Lepomis macrochirus (Bluegill sunfish)): 4.1 mg/L; Exposure time: 96hr

LC50 (Oncorhynchus mykiss (rainbow trout)): 3.6 mg/L; Exposure time: 96hr

NOEC (Pimephales promelas (fathead minnow)): 1.36 mg/L; Exposure time: 42d

Daphnia and other aquatic invertebrates:

EC50 (Daphnia magna (Water flea)): 5.55 mg/L; Exposure time: 48hr

NOEC (Ceriodaphnia dubia (water flea)): 0.88 mg/L; Exposure time: 7d

Microorganisms:

LC50 (activated sludge): 135 mg/L; Exposure time: 3hr

Chronic aquatic toxicity: Harmful to aquatic life with long lasting effects.

Toxicity Data on Soil: Not expected to adsorb on soil.

Other organisms relevant to the environment: No data available.

Persistence and Degradability

Sodium Dodecyl Sulfate

Biodegradation: 90%; 28d

Bioaccumulative Potential

Sodium Dodecyl Sulfate

Bioaccumulation: Cyprinus carpio (Carp); 3d; 3.9-5.3 (Bioconcentration Factor)

Partition coefficient n-octanol/water: log Pow: -2.03 (20°C)

Guanidine Thiocyanate

Partition coefficient: n-octanol / water: log Pow: ca. -1.38

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Mobility in Soil

No data available for the extraction kit, including Sodium Dodecyl Sulfate and Guanidine Thiocyanate.

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not contaminate ponds, waterways or drains with chemical or used container. Used components from this product should be disposed to a licensed waste management company.

Waste material must be disposed of in accordance with federal, state and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

IATA-DGR / IMDG-Code

Not regulated as dangerous product in the meaning of transport regulations.

UN Number: Not regulated as dangerous product

UN proper shipping name: Not regulated as dangerous product

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not regulated as dangerous product

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SECTION 15: REGULATORY INFORMATION

International Inventories

REACH:	Not comply
CH INV:	Complies
TSCA:	Complies
DSL:	Complies
AICS:	Complies
NZIoC:	Complies
ENC:	Not comply
ISHL:	Not comply
KECI:	Complies
PICCS:	Complies
IECES:	Complies

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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