

MATERIAL SAFETY DATA SHEET**VIVANTIS TECHNOLOGIES SDN BHD
REVONGEN CORPORATION CENTER**

Document No.: MSDSrev05_GFBA

Date prepared: 10th January 2023Reviewed: 10th January 2023**SECTION 1: CHEMICAL IDENTIFICATION**

Catalogue Number: GF-BA-005; GF-BA-050; GF-BA-100; GF-BA-K; GF-BA-KW

Product Name: GF-1 Bacterial DNA Extraction Kit with 5 preps, 50 preps and 100 preps; GF-1 Bacterial Starter Kit/*Taq* DNA Polymerase; GF-1 Bacterial Starter Kit/*Chromo Taq* DNA Polymerase

Description: DNA extraction kit for purification of high molecular weight genomic DNA from either Gram-negative or Gram-positive bacteria.

Intended Use:

For research use and laboratory use only.

Company Headquarters:Vivantis Technologies Sdn Bhd
Revongen Corporation Center
Level 17, Top Glove Tower,
No. 16, Persiaran Setia Dagang,
Setia Alam, Seksyen U13, 40170 Shah Alam,
Selangor Darul Ehsan, Malaysia.

Tel: +6 03 3359 1166

Fax: +6 03 3358 0303

Email: info@vivanttechnologies.comWebsite: www.vivanttechnologies.com**Company Manufacturing:**Vivantis Technologies Sdn Bhd
Production Lab
Level 1, Enterprise 2,
Technology Park Malaysia,
Lebuhraya Puchong-Sg. Besi,
57000 Bukit Jalil,
Kuala Lumpur, Malaysia.

Pairing Nature with
Scientific Discoveries

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
R1 Buffer	a. Triton X-100 b. Tween 20	9036-19-5 9005-64-5	≤50% ≤10%
R2 Buffer	No hazardous substance or mixture in the ingredients	-	-
BG Buffer	Guanidine Thiocyanate	593-84-0	≥30% - <60%
Wash Buffer	No hazardous substance or mixture in the ingredients	-	-
Elution Buffer	No hazardous substance or mixture in the ingredients	-	-
Proteinase K	Proteinase, Tritirachium album serine	39450-01-6	>95%

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.

Pairing Nature with
Scientific Discoveries

Component(s)	Hazardous Ingredient(s)	CAS No.	Concentration
R1 Buffer	Triton X-100	9036-19-5	≤50%
Classification (Regulation (EC) No. 1272/2008) Acute Toxicity 4; H302 Acute Toxicity 2; H315 Serious eye damage 1; H318 Acute aquatic toxicity 1; H400 Chronic aquatic toxicity 1; H410			
Classification (67/548/EEC) No information available.			

Component(s)	Hazardous Ingredient(s)
R2 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.	

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

Pairing Nature with
Scientific Discoveries

Component(s)	Hazardous Ingredient(s)
Wash 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.	

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.	

Component(s)	Hazardous Ingredient(s)	CAS No.	Concentration
Proteinase K	Proteinase, Triticachium album serine	39450-01-6	>95%
Classification (Regulation (EC) No. 1272/2008) Skin Irritation 2; H315 Eye Irritation 2; H319 Respiratory Sensitivity 1; H334 Skin Sensitivity 1; H317 STOT Single Exposure 3; H335			
Classification (67/548/EEC) Xi; R36/37/38/42 Xi; Xi; R36/37/38 Xn; R42 Xi; R43			

Pairing Nature with
Scientific Discoveries

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
Serious eye damage, Category 1;	H318: Causes serious eye damage
STOT Single Exposure Category 3;	H335: May cause respiratory irritation
Acute aquatic toxicity, Category 1;	H400: Very toxic to aquatic life
Chronic aquatic toxicity, Category 1;	H410: Very toxic to aquatic life with long lasting effects
Chronic aquatic toxicity, Category 3;	H412: Harmful to aquatic life with long lasting effects

Label elements

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

Hazard pictograms



Signal word

Danger

Hazard statements

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Pairing Nature with
Scientific Discoveries

Precautionary statements

Prevention:

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 eye protection

Response:

P302 + P352	If on skin, wash with plenty of soap and water.
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.
P305 + P351 + P338	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313	Get medical advice/attention.
P501	Dispose of contents/container to an approved waste disposal plant.

Other hazards

Not applicable

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.

The most important acute and delayed symptoms and effects are dermatitis, vomiting, risk of corneal clouding, drying-out effect resulting in rough and chapped skin, irritation and corrosion as well as risk of serious eye damage.

Pairing Nature with
Scientific Discoveries

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media

Suitable: Carbon dioxide, water foam and dry powder.

Unsuitable: Not available.

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.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of nitrogen oxides.

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.

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.

Pairing Nature with
Scientific Discoveries

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.

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.

Pairing Nature with
Scientific Discoveries

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information for R1 Buffer, R2 Buffer, BG Buffer, Wash Buffer, Elution Buffer and Proteinase K

Appearance:	Liquid, Colorless
Odor:	No odor
pH:	R1 Buffer: pH8-9 R2 Buffer: pH8-8.5 BG Buffer: pH5.5 Wash Buffer: pH7-9 Elution Buffer: pH8-9 Proteinase K: pH7.5
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 buffers soluble
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

Pairing Nature with
Scientific Discoveries

Conditions to avoid:	Exposure to light and moisture. Heat, flames and sparks.
Incompatible materials:	Strong acids and oxidizing agents. Cyanides.
Polymerization:	No data available.
Hazardous decomposition products:	No data available.

SECTION 11: TOXICOLOGICAL INFORMATION

Information for Triton X-100 (R1 Buffer)

Acute Toxicity

Acute oral toxicity:	LD50 Oral (Rat): 1900 - 1500 mg/kg
Acute inhalation toxicity:	No information available
Acute dermal toxicity:	LD50 Dermal (Rabbit) >3000 mg/kg

Skin corrosion / irritation:	Irritating (Rabbit). Drying-out effect resulting in rough and chapped skin. Dermatitis.
Serious eye damage / eye irritation:	Risk of corneal clouding
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 Guanidine Thiocyanate (R1 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

Pairing Nature with
Scientific Discoveries

Information for Wash Buffer 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

Information for Proteinase K

Acute Toxicity:	Not classified based on available information
Skin corrosion / irritation:	Causes skin irritation and / or dermatitis
Serious eye damage / eye irritation:	Causes eye irritation; may cause irreversible eye damage
Respiratory or skin sensitization:	May cause skin allergy or may cause sensitization by inhalation
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 as specific target organ toxicant, repeated exposure.

SECTION 12: ECOLOGICAL INFORMATION

The extraction kit contains **Triton X-100 (R1 Solution)** and **Guanidine Thiocyanate (BG 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.

Toxicity

Triton X-100

Fish: LC50 (Leucisus idus (Golden orfe)): 0.26 mg/L; 96 hr
 Daphnia and other aquatic invertebrates: EC50 (Daphnia magna (water flea)): 0.011 mg/L; 48 hr
 Algae: EC50 (Pseudokirchneriella subcapitata (Green algae)): 1.9 mg/L; 96 hr

Pairing Nature with
Scientific Discoveries

Chronic toxicity: Fish: (Danio rerio zebra fish)): 0.012 mg/L
 Daphnia and other aquatic vertebrates: (Daphnia magna (Water flea)):0.03 mg/L;
 21d

Guanidine Thiocyanate

Fish: LC50 (Poecilia reticula (guppy)): 89.1 mg/L; Exposure time: 96 hr
 Daphnia and other aquatic invertebrates: EC50 (Daphia (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

Persistence and Degradability

Triton X

Biodegradability: 22%; 28d; aerobic.

Bioaccumulative Potential

Guanidine Thiocyanate

Partition coefficient: n-octanol / water: log Pow: 2.7 (20°C)

Mobility in Soil

No data available for the extraction kit, including Triton X, Guanidine Thiocyanate & Proteinase K.

Results of PBT and vPvB assessment

No applicable for the extraction kit, Triton X, Guanidine Thiocyanate & Proteinase K.

Other adverse effects

No information available.

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.

Pairing Nature with Scientific Discoveries

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

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

R 22: Harmful if swallowed.

R 36/37/38: Irritating to eyes, respiratory system and skin.

R 36/37: Irritating to eyes and skin.

R 41: Risk of serious damage to eyes.

R42: May cause sensitization by inhalation.

R43: May cause sensitization by skin contact.

S 26: Rinse eyes immediately with plenty of water.

S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

Korea / Taiwan / China

No information available

US Federal Regulations

SARA 313

Not regulated

Pairing Nature with
Scientific Discoveries

US State Regulations

California Proposition 65

Not regulated

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

DSL: Yes

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.

All Vivantis products are supplied for manufacturing, research and laboratory use only. Researchers and laboratory personnel intending to use any of these products for medical investigation on human are solely responsible for such use and for compliance with the pertinent regulations of the United States Food & Drug Administration (US-FDA) and other regulations. We do not assume liability for damages resulting from the handling, use and/or disposal of these products, from their use in violation of patent or other rights or reliance upon this information.

Pairing Nature with
Scientific Discoveries