

MATERIAL SAFETY DATA SHEET

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Date prepared: 3rd January 2017

Reviewed: 9th January 2017

SECTION 1: CHEMICAL IDENTIFICATION

Code: GF-BA-050; GF-BA-100; GF-BD-050; GF-BD-100; GF-BT-050; GF-BT-100;
GF-FD-025; GF-FE-025; GF-GC-050; GF-GC-100; GF-GC-200; GF-GP-050;
GF-GP-100; GF-GP-200; GF-MT-025; GF-MT-050; GF-MT-100; GF-PC-050;
GF-PC-100; GF-PC-200; GF-PL-050; GF-PL-100; GF-PL-200; GF-PT-050;
GF-PT-100; GF-RD-025; GF-RD-050; GF-RD-100; GF-SD-025; GF-TB-025;
GF-TD-050; GF-TD-100; GF-TR-025; GF-TR-050; GF-TR-100

Name: GF-1 Bacterial DNA Extraction Kit; GF-1 Blood DNA Extraction Kit;
GF-1 Tissue Blood Combi DNA Extraction Kit; GF-1 Forensic DNA Extraction Kit;
GF-1 Food DNA Extraction Kit; GF-1 AmbiClean Kit (Gel & PCR);
GF-1 Gel DNA Recovery Kit; GF-1 microTotal RNA Extraction Kit;
GF-1 PCR Clean-Up Kit; GF-1 Plasmid DNA Extraction Kit;
GF-1 Plant DNA Extraction Kit; GF-1 Viral Nucleic Acid Extraction Kit;
GF-1 Soil Sample DNA Extraction Kit; GF-1 Blood Total RNA Extraction Kit;
GF-1 Tissue DNA Extraction Kit; GF-1 Total RNA Extraction Kit

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemicals in buffer solution. Volume of each product package varies.

<u>Chemical Name:</u>	<u>CAS#:</u>	<u>%</u>
Acetic Acid	64-19-7	<5
Calcium Chloride, anhydrous	7440-70-2	<1
DNase I	9003-98-9	<5
EDTA	6381-92-6	<10
Glycerol	56-81-5	<1
Guanidine Hydrochloride	50-01-1	<50

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Guanidine Thiocyanate	593-84-0	<60
Magnesium Chloride	7791-18-6	<1
Nuclease, deoxyribo-	9003-98-9	<90
Phenol Red	143-74-8	<1
Potassium Acetate	127-08-2	<1
Proteinase K	39450-01-6	<5
Ribonuclease A	9001-99-4	<5
Sodium Acetate	127-09-3	<2
Sodium Chloride	7647-14-5	≤2.33
Sodium Dodecyl Sulfate	151-21-3	<8
Tris Hydrochloride	1185-53-1	≤7.88
Triton X-100	9002-93-1	<50
Tween 20	9005-64-5	<1

SECTION 3: HAZARDS IDENTIFICATION

The product is a kit consisting of different buffers, which different buffers are produced using individual ingredients. The classification of the ingredients can be obtained from section 3.

GHS Classification



Signal word: Harmful (slight)

Hazard statements:

H302 + H332:	Harmful if swallowed or if inhaled
H315:	Causes skin irritation
H317:	May cause an allergic skin reaction
H318:	May cause serious eye damage
H334:	May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements:

P261:	
P305+P351+P338+P310:	Rinse cautiously with water for at least 15 minutes if contact with eyes. Remove contact lenses, if present and easy to do and continue rinsing. Call a poison center or doctor or physician immediately.
P342+P311:	Call a poison center or doctor or physician if experiencing respiratory symptoms.
P362+P364:	Take off contaminated clothing and wash it before use.

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SECTION 4: FIRST-AID MEASURES

In case of inhalation, remove to fresh air. If unconscious, place in recovery position. Seek medical assistance if there are problems.

In case of skin contact, wash with soaps and excess water for at least 15 minutes. Seek medical assistance if irritation is persistent.

In case of eye contact, wash copiously with water for up to 15 minutes. Small amounts splashed into eyes can cause tissue damage and blindness. Remove contact lenses and continue rinsing. Seek medical assistance if there is persistent irritation.

In case of ingestion, wash out mouth with water and drink afterwards plenty of water provided the person is conscious. Do not induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Seek medical assistance if there is abdominal discomfort.

SECTION 5: FIRE FIGHTING MEASURES

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

Suitable extinguishing media: Alcohol resistant foam, carbon dioxide, dry chemical, or water spray or water spray

Hazardous combustion products: Carbon dioxide, carbon monoxide, dense smoke

Upper flammable limit: Not available

Lower flammable limit: Not available

Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the fire. Do not direct a water stream directly into the hot burning liquid. Use water spray/fog for cooling.

During fire-fighting, do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

Wear self-contained breathing apparatus for firefighting if necessary.

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

For personal protection, use personal protective equipment and clothing as needed. Ensure adequate ventilation.

For environmental precautions, prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Exposure to the spilled material may be irritating or harmful. Additional precautions may be necessary based on special circumstances created by the spill including: the material spilled, the quantity of the spill, the area in which the spill occurred.

For cleaning up, soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable and closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Keep containers tightly closed in a dry, cool and well-ventilated place to protect product quality. Handle in accordance with good industrial hygiene and safety practice. Avoid creating dust and tearing bags.

Wash thoroughly after handling; remove contaminated clothing and wash before re-use.

For safe handling, avoid contact with skin and eyes. Avoid exposure by obtaining special instructions before use. Avoid smoking, eating and drinking in application area. Provide sufficient air exchange and/or exhaust in work rooms. To prevent leaks or spillages from spreading, provide a suitable liquid retention system.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Eye protection

An eye wash station must be available where this product is used. Wear chemical goggles.

Skin protection

Avoid skin contact by wearing chemically resistant gloves, a lab coat and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposure areas with mild soap and water before eating, drinking, and when leaving work. Have a safety shower available.

Respiratory protection

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Different kits have different buffers, the chemical properties are different for different buffers.

Appearance:	Liquid
	White lyophilized form – Proteinase K and carrier RNA
Color:	Colorless
Odor:	Odorless
pH:	different pH for different buffers
Melting Point:	No data available
Boiling Point:	No data available
	RNase-free Water: 100°C
Flash Point:	No data available
Ignition Point:	No data available
Flammability:	The product is not flammable and does not sustain combustion
Explosive Properties:	No data available
Oxidizing Properties:	substance is not classified as oxidizing
Vapour Pressure:	No data available
	RNase-free Water: 23 hPa (20°C)
Relative Density:	No data available

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Water Solubility: completely miscible
 Viscosity: No data available

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions
 Conditions to be avoided: Heat, flames and sparks
 Materials to avoid: Strong acids and oxidizing agents, bases
 Hazardous decomposition products: None known
 Hazardous polymerization: Hazardous polymerization will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity: Harmful if swallowed

Acute oral toxicity:

EDTA: LD50 oral – rat – 2000mg/kg
 LD50 oral – rabbit – 2300mg/kg
 Guanidine hydrochloride: LD50 oral – rat – 475mg/kg
 LD50 oral – mouse – 571mg/kg
 Triton X-100: LD50 oral – rat – 1900 – 5000 mg/kg
 Sodium dodecyl sulfate: LD50 oral – rat - 1288mg/kg
 Sodium hydroxide: LD50 oral – rabbit – 500mg/kg

Acute inhalation toxicity:

Guanidine hydrochloride: LC50 – female rat – 3.2mg/l, 4hrs
 LC50 – male and female rat – 5.4mg/l, 4hrs
 LC50 – male rat – 7.7mg/l, 4hrs

Acute dermal toxicity:

Guanidine hydrochloride: LD50 dermal – rabbit - >2001 mg/kg
 Triton X-100: LD50 dermal – rabbit - >3000 mg/kg
 Sodium dodecyl sulfate: LD50 dermal - >10g/kg

Primary irritant effect:

On the skin and eye: no irritating effect
 Sensitization: no sensitizing effects known

Carcinogenicity: No classified based on available information
 Germ cell mutagenicity: No classified based on available information
 Reproductive toxicity: No classified based on available information
 Aspiration toxicity: No classified based on available information
 Specific target organ toxicity – single exposure: No classified based on available information
 Specific target organ toxicity – repeated exposure: No classified based on available information

Other Toxicological Information

Contains a substance(s) that is a possible reproductive system hazard based on high dose tests with laboratory animals.

SECTION 12: ECOLOGICAL INFORMATION

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

No ecological information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Observe all federal, state and local environmental regulations.

Do not contaminate ponds, waterways or ditches with chemical or used container, send to a licensed waste management company.

Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

SECTION 14: TRANSPORT INFORMATION

UN no: Not regulated as a dangerous good

Not regulated as a dangerous good in the meaning of ADR/RID, ADNR, IMDG-Code, ICAO/IATA-DGR.

SECTION 15: REGULATORY INFORMATION

R22: Harmful if swallowed

R36/38: Irritating to eyes and skin

R41: Risk of serious damage to eyes

R42: May cause sensitisation by inhalation

R43: May cause sensitization by skin contact

S26: Rinse eyes immediately with plenty of water

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection

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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