MATERIAL SAFETY DATA SHEET
VIVANTIS TECHNOLOGIES SDN BHD

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PC0907-500ml
Product Name: Formamide

Intended Use:
For research use only. Not for use in diagnostic procedures.

Company Address:

Vivantis Technologies Sdn Bhd
No. 12A, Jalan TP5,
Taman Perindustrian UEP,
47600 Subang Jaya,
Selangor Darul Ehsan, Malaysia.
Tel: +6 016 226 0492
Email: info@vivantechnologies.com
Website: www.vivantechnologies.com

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.	Index No.
Formamide	75-12-7	200-842-0	616-052-00-8

Synonyms: Amide C1, formic amide
Chemical formula: CH_3NO
Molecular weight: 45.04 g/mol

SECTION 3: HAZARDS IDENTIFICATION

WHMIS Classification

D2A	Very Toxic Material Causing Other Toxic Effects	Teratogen
D2B	Reproductive hazard, Moderate eye irritant	Mutagen

GHS Classification

No information available.

HMIS Classification

Health Hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical hazards:	1

NFPA Rating

Health Hazard:	2
Fire:	1
Reactivity Hazard:	1

Potential Health Effects

In case of inhalation, may be harmful and causes respiratory tract irritation.
In case of skin contact, may cause skin irritation.
In case of eye contact, may cause eye irritation.
In case of ingestion, may be harmful.

SECTION 4: FIRST-AID MEASURES

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.
In case of skin contact, wash off immediately with soap and plenty of water.
In case of inhalation, move to fresh air. If breathing becomes difficult, give oxygen.
In case of ingestion, clean mouth with water and drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.

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 or carbon dioxide.
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: Not available.

Flash point:	150ºC (302ºF) - closed up.
Ignition temperature:	500ºC (932ºF)
Explosion data – sensitivity to mechanical impact:	No data available.
Explosion data – sensitivity to static discharge:	No data available.

SECTION 6: ACCIDENTAL RELEASE MEASURES

For personal protection, use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
For environmental precautions, prevent further leakage or spillage if safe to do so. Do not let product enter drains.
For cleaning up, soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Avoid inhalation of vapor or mist.
Recommended storage temperature: 2 - 8 °C.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	Country	Control parameters
Formamide	United Kingdom	WEL-TWA: 20 ppm TWA: 37 mg/m^3 WEL-STEL: 30 ppm STEL: 56 mg/m^3
	Belgium	TWA: 10 ppm VLE: 18 mg/m^3
	France	VME: 20 ppm VME: 30 mg/m^3
	Germany	TWA: 18 mg/m^3 (Skin notation)
	Malaysia	TWA: 10 ppm TWA: 18 mg/m^3
	Netherlands	MAC: 9 ppm MAC: 16 mg/m^3
	Spain	VLA-ED: 10 ppm VLA-ED: 19 mg/m^3

Respiratory protection	Wear a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand protection	Handle with gloves.
Eye protection	Use safety glasses.
Skin and body protection	Wear protective gloves and clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear/Colorless
Physical state:	Liquid
Odor:	No information available
Odor threshold:	No information available
Density:	1.134 g/mL at 25ºC (77ºF)
pH:	7.1 at 23 g/L
Melting point:	2-3ºC (36-37ºF)
Freezing point:	No information available
Initial Boiling point:	No information available
Boiling point:	210ºC (410ºF)
Flash point:	150ºC (302ºF) – closed cup
Ignition temperature:	500ºC (932ºF)
Decomposition temperature:	No information available
Upper Flammability limit in air:	No data available
Lower Flammability limit in air:	No data available
Lower explosion limit:	2.7% (V)
Upper explosion limit:	19% (V)
Oxidizing properties:	No information available
Solubility:	No information available
Partition coefficient (n-octanol/water):	No data available
Vapor pressure:	0.11 hPa (0.08 mmHg) at 20ºC (68ºF), 40.00 hPa (30.00 mmHg) at 129 °C (264 °F), 1.29 hPa (0.97 mmHg) at 70 °C (158 °F)
Vapor density:	No data available
Evaporation rate:	No data available
Specific gravity:	No data available
Viscosity:	No information available
Specific gravity:	No data available
Solubility:	Water solubility completely miscible
Viscosity:	No information available
Vapor density:	No data available
Partition coefficient (n-octanol/water):	log Pow: -1.51
Evaporation rate:	No data available

SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

Incompatible products:	Oxidizing agents, acids and bases.
Hazardous decomposition products:	Carbon oxides, nitrogen oxides.
Conditions to avoid:	No data available.
Hazardous polymerization:	No data available.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50:	Rat – 5577 mg/kg
Inhalation LC50:	Rat – 3900 ppm - 6 hrs
Dermal LD50:	Rabbit – 17000 mg/kg

Sensitization:	Did not cause sensitization on laboratory animals
Serious eye damage/eye irritation:	Rabbit - Severe eye irritation
Respiratory or skin sensitization:	No data available
Germ cell mutagenicity:	No data available
Reproductive toxicity:	No data available
Teratogenicity:	No data available
STOT - single exposure:	No data available
STOT- repeated exposure:	No data available
Aspiration hazard:	No data available

Carcinogenicity

IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

In vivo tests showed mutagenic effects

Developmental toxicity:	Rat - skin
Effects on embryo or fetus:	Fetal death

May cause congenital malformation in the fetus.

Reproductive toxicity:	Rat - Oral
Effects on Fertility:	Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus:	Fetotoxicity (except death, e.g., stunted fetus).

May cause reproductive disorders.

Signs and Symptoms of Exposure
Gastrointestinal disturbance

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.
Target Organs	Blood, central nervous system, liver, kidney.

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.
RTECS: LQ0525000

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

LC50: Fish – Leuciscus idus (Golden orfe) – >4600 – < 9300 mg/L – 96 hrs

EC50: Daphna magna (water flea) – >500 mg/L – 48 hrs
Algae – Scenedesmus subspicatus – 1141 mg/L – 72 hrs
Bacteria – Pseudomonas putida - > 10000 mg/L – 17 hrs

Persistence and degradability:	Readily biodegradable according to appropriate OECD test.
Further information on ecology:	Adsorbed organic bound halogens (AOX)
Remarks:	Product does not contain any organic halogens.

SECTION 13: DISPOSAL CONSIDERATIONS

Observe all federal, state and local environmental regulations.
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
For contaminated packaging, dispose as unused product

SECTION 14: TRANSPORT INFORMATION

DOT (US)

Not dangerous goods.

IMDG

Not dangerous goods.

IATA

Not dangerous goods.

SECTION 15: REGULATORY INFORMATION

DSL Status

All components of this product are on the Canadian DSL List.

WHMIS Classification

D2A	Very Toxic Material Causing Other Toxic Effects	Teratogen
D2B	Reproductive hazard and moderate eye irritant	Mutagen

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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