MATERIAL SAFETY DATA SHEET

VIVANTIS TECHNOLOGIES SDN BHD
REVONGEN CORPORATION CENTER

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PC0928-100g
Product Name: 3-(N-Morpholino)propane-sulfonic Acid (MOPS)

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

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	CAS No.	EC No.
3-(N-Morpholino)propane-sulfonic Acid	1132-61-2	214-478-5

Synonyms: Morpholinopropanesulfonic acid; 3-morpholnopropanesulfonic

SECTION 3: HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity, oral -	Category 5
Skin irritation -	Category 2A
Eye irritation -	Category 2A
Specific target organ toxicity – single exposure -	Category 3

GSH Label elements, including precautionary statements:

Signal word: Warning

Hazard statements

H303	May be harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statements

P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P305 + P351 + P338	Rinse cautiously with water for several minutes if contact with eyes. Remove contact lens present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Flammability:	1
Physical Hazard:	0

Potential Health Effects

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

SECTION 4: FIRST-AID MEASURES

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
In case of skin contact, wash off immediately with soap and plenty of water. Consult a physician afterwards.
In case of inhalation, move to fresh air. If not breathing, give artificial respiration. Consult a physician afterwards.
In case of ingestion, rinse mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE FIGHTING MEASURES

Not flammable or combustible.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH and full protective gear.

Hazardous decomposition products formed under fire conditions: Nitrogen oxides, sulfur oxides, carbon oxides

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. Ensure adequate ventilation, especially in confined areas. Avoid dust formation and breathing dust. Avoid breathing vapors, mist or gas.
For environmental precautions, prevent product from entering drains if safe to do so.
For cleaning up, avoid dust formation. Sweep up and shovel then transfer to properly labeled containers. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Normal measures for preventive fire protection are needed. Give appropriate exhaust ventilation if dust formation is unavoidable.
Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection	Where exposure limits are exceeded, wear respiratory protection. Use respirators type P95 (US) or type P1 (EU EN 143) for nuisance exposures. Use respirator cartridges type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) for higher level protection. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye/face protection	Use safety glasses with side-shields conforming to EN166. Always use eye protection equipment tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand protection	Handle with gloves which inspected prior to use. Practice proper glove removal technique to avoid skin contact with this product. Disposal of contaminated gloves follows applicable laws and good laboratory practices. Wash hands after handling with this product.
Skin and body protection	Wear protection clothing according to the concentration and amount of the dangerous substance at the specific workplace.

Use engineering measures such as ventilation systems or laboratory fume hood to avoid exposure.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Fine white
Physical state:	Powder
Odor:	No information available
Odor threshold:	No information available
pH:	No data available
Melting point:	277 ˚C
Boiling point:	No data available
Initial boiling point:	No information available
Freezing point:	No information available
Flash point:	Not determined

Decomposition temperature:	No information available
Auto-ignition temperature:	No data available
Upper flammability limits in air:	No data available
Lower flammability limits in air:	No data available
Explosive properties:	No information available
Oxidizing properties:	No information available
Water Solubility:	Soluble
Partition coefficient (n-octanol/water):	No data available
MMHG @ 37.8˚C:	No data available
Vapor density:	No information available
Evaporation rate:	No data available
Specific gravity:	No data available
Viscosity:	No information available

SECTION 10: STABILITY AND REACTIVITY

Stable under recommended storage conditions.

Materials to avoid:	Strong oxidizing agents, strong bases
Possibility of hazardous reactions:	No data available
Hazardous decomposition product:	Carbon oxides, sulfur oxides, nitrogen oxides
Condition to avoid:	No data available

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50: Rat - > 2000 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
Reproductive toxicity:	No data available
Teratogenicity:	No data available
Aspiration hazard:	No information available
Synergistic effects:	No information available
Specific target organ toxicity – single exposure:	May cause respiratory irritation
Specific target organ toxicity – repeated exposure:	No data available

Carcinogenicity

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

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

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

RTECS: QE9104530

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

This product is toxic to aquatic invertebrates.

EC50: Daphnia magna (water flea) – >100 mg/L – 48hrs

Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available
PBT and vPvB assessment:	No data available

SECTION 13: DISPOSAL CONSIDERATIONS

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

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

For contaminated packaging, dispose of as unused product.

Observe all federal, state and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

DOT

Not dangerous product.

IATA

Not dangerous product.

IMDG

Not dangerous product.

SECTION 15: REGULATORY INFORMATION

WHMIS Hazard Class

D2B	Toxic materials causing other toxic effects	Moderate skin irritant Moderate respiratory irritant Moderate eye irritant

SECTION 16: OTHER INFORMATION

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