MATERIAL SAFETY DATA SHEET

VIVANTIS TECHNOLOGIES SDN BHD
REVONGEN CORPORATION CENTER

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SECTION 1: CHEMICAL IDENTIFICATION

Catalogue Number: PR0611-250g; PR0611-500g; PR0611-1kg
Product Name: Sodium Dodecyl Sulfate

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

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.
Sodium Dodecyl Sulfate	151-21-3	205-788-1

Synonym: Sodium Lauryl Sulfate
Chemical formula: $C_{12}H_{25}NaO_4S$

SECTION 3: HAZARDS IDENTIFICATION

GHS Classification

Oral acute toxicity- Category 4
Inhalation acute toxicity- Category 4
Flammable solids- Category 2
Acute aquatic toxicity- Category 2
Chronic aquatic toxicity- Category 3
Specific target organ toxicity
- Single exposure on respiratory system - Category 3

Skin irritation/corrosion- Category 2
Eye irritation/ Serious eye damage- Category 1
Skin sensitization- Category 1

GHS Label elements, including precautionary statements

Signal word: Danger

Hazard statements

H228	Flammable solid
H302+H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H401	Toxic to aquatic life
H412	Harmful to aquatic life with long lasting effects

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P240	Ground and bond container and receiving equipment
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment
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
P271	Use only outdoors or in a well-ventilated area
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P312+P330	If swallowed, immediately call a poison center or doctor/physician. Rinse mouth
P302+P352	If on skin, wash with plenty of soap and water
P304+P340+P312	If inhaled, remove victim to fresh air and keep at rest in a position. Call a poison center or doctor if you feel unwell
P305+P351+P338+	If in eyes, rinse cautiously with water for several minutes
P310	Remove contact lenses, if present and easy to do. Continue rinsing
P332+P313	If skin irritation occurs, get medical advice/ attention
P370+P378	In case of fire, use dry sand, dry chemical or alcohol-resistant foam to extinguish
P403+P233	Store in well-ventilated place. Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/ container to an approved waste disposal plant

HMIS Classification

Health hazard:	2
Flammability:	3
Physical hazards:	3

Potential Health Effects

In case of eye contact, cause eye irritation.
In case of skin contact, may be harmful if absorbed through skin and cause skin irritation.
If inhaled, may be harmful and cause respiratory tract irritation.
If swallowed, harmful.

SECTION 4: FIRST-AID MEASURES

In case of eye contact, wash copiously with water for up to 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical assistance if there is problem.
In case of skin contact, wash with excess water for up to 15 minutes while removing contaminated clothing and shoes. Consult a physician. Generally, the product does not irritate the skin.
In case of inhalation, remove to fresh air immediately. If not breathing, give artificial respiration.
In case of ingestion, wash out mouth with water provided the person is conscious. Never induce vomit or give anything by mouth to an unconscious person. Consult a physician.

SECTION 5: FIRE FIGHTING MEASURES

Flammable.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Use water spray to cool unopened containers.
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH and full protective gear.

Hazardous decomposition products formed under fire conditions: No data available.

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 dust formation and breathing vapors, mist, dust or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition.
For environmental precautions, prevent further leakage or spillage if safe to do so for containment. Do not let product enter drains. Discharge into the environment must be avoided.
For cleaning up, absorb with liquid-binding material such as sand, diatomite, acid binders, universal binders and sawdust. Then, sweep up and shovel. Contain spillage and collect with an electrically protected vacuum cleaner or by wet brushing to avoid dust formation. Pick up and transfer to properly labeled containers for disposal according to local regulations. Keep in suitable, closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

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.
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Hygroscopic.
Provide appropriate exhaust ventilation at places where dust is formed. Prevent electrostatic charge formation. Keep away from sources of ignition and heat. No smoking when handles with this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection	Risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN143) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique by not touching glove's outer surface to avoid skin contact with the product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands before break and at the end of workday.
Eye protection	Use face shield and safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).
Skin and body protection	Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Use mechanical exhaust or laboratory fume hood to avoid exposure.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White
Physical state:	Rods or powder
Odor:	Odorless
Odor threshold:	No data available
Density:	0.37 g/cm^3
pH:	9.1 at 10g/l
Melting point:	204 - 207˚C (399 – 405˚F)
Boiling point:	No data available
Flash point:	170˚C (338˚F)
Auto-ignition temperature:	310.5˚C (590.9˚F)
Ignition temperature:	No data available
Flammability (solid, gas):	Flammable solid (Category 2)
Upper explosion limits:	No data available
Lower explosion limits:	No data available
Solubility (in water):	Soluble
Solubility (in other solvents):	Partly soluble in ethanol
Partition coefficient: (n-octanol/water)	log Pow: 0.83 at 22˚C (72˚F)
Vapor pressure:	0.0018 hPa (0.014 mmHg) at 20˚C (68˚F)
Relative vapor density:	No data available
Evaporation rate:	No data available

SECTION 10: STABILITY AND REACTIVITY

Stable under normal temperatures and pressures

Materials to avoid:	Oxidizing agent
Hazardous decomposition products:	Sodium oxides, sulphur oxides, carbon oxides
Conditions to avoid:	Protect from heat, flames and sparks

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50: Rat – 1200 mg/kg
Inhalation LD50: Rat – 3900 mg/m^3 – 1 hr

Skin corrosion/irritation:	Rabbit – skin irritation (OECD Test Guideline 404) – 24hrs
Eye damage/eye irritation:	Rabbit – Risk of serious damage to eyes (OECD Test Guideline 405)
Genotoxicity:	In vitro – Ames Test on *S.typhimurium* (with and without metabolic activation) is negative
Reproductive toxicity:	No data available
Teratogenicity:	No data available
Aspiration hazard:	No data available
Specific target organ toxicity:	No data available
Carcinogenicity:	No data available

Signs and Symptoms of Exposure

Sneezing leading to pulmonary sensitization has been reported cause by sodium salt of dodecyl sulphate. Possible sign of hyperactive airway dysfunction and pulmonary allergy may occur if left untreated. Fatigue, malaise and aching may be experienced.
Symptoms of exposure can persist for more than two (2) years.
Automobile exhaust, perfumes, passive smoking or other nonspecific environmental stimuli could possibly cause symptoms activation or reoccurrence.

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.
RTECS: WT1050000

SECTION 12: ECOLOGICAL INFORMATION

This product is harmful to aquatic organisms.

LC50:	Fish – Pimephales promelas – 29mg/l – 96hrs
	Daphnia magna (water flea) –5.55mg/l – 96hrs
EC50:	Desmodesmus subspicatus (Scenedesmus subspicatus) – >120mg/l – 72hrs
NOEC:	Daphnia dubia (water flea) – 0.68mg/l – 7days
LOEC:	Pseudokirchneriella subcapitata – 2.68mg/l – 6days

Persistence and degradability: Aerobically biodegradable (95% readily biodegradable)
Bioaccumulative potential: Cyprinus carpio (Carp) – 72hrs
Bioconcentration factor (BCF): 3.9 – 5.3
Mobility in soil: No data available
PBT and vPvB assessment: No data available
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose waste material in accordance with all federal, state and local environmental regulation.
Contact a licensed professional waste disposal service or chemically decompose in a chemical incinerator.
For chemical incineration, special precaution and care have to be in consideration as this material in highly flammable. Burn in a chemical incinerator equipped with an afterburner and scrubber.
For surplus and non-recyclable solution, offer to a licensed disposal company.
Observe all federal, state and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

DOT (US)
UN no.: 1325 Class: 4.1 Packing group: III
Proper shipping name: Flammable Solids, Organic, N.O.S. (Sodium Dodecyl Sulphate)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN no.: 1325 Class: 4.1 Packing group: III EMS-No.: F-A, S-G
Proper shipping name: Flammable Solid, Organic, N.O.S. (Sodium Dodecyl Sulphate)
Marine pollutant: No

IATA
UN no.: 1325 Class: 4.1 Packing group: III
Proper shipping name: Flammable Solid, Organic, N.O.S. (Sodium Dodecyl Sulphate)

SECTION 15: REGULATORY INFORMATION

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by inhalation
D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Moderate respiratory irritant Severe eye irritant

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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