

MATERIAL SAFETY DATA SHEET

VIVANTIS TECHNOLOGIES SDN BHD REVONGEN CORPORATION CENTER

Document No.: MSDSrev05_PR0611

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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.

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@vivantechnologies.com Website: www.vivantechnologies.com

Company Manufacturing:

Vivantis Technologies Sdn Bhd Level 1, Enterprise 2, Technology Park Malaysia, Lebuhraya Puchong-Sg. Besi, 57000 Bukit Jalil, Kuala Lumpur, Malaysia.









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: C₁₂H₂₅NaO₄S

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



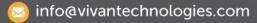




Signal word: Danger

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	Keen awa	v from heat	hot surfaces.	sparks, or	nen flames an	d other ignition
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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

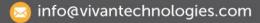
Potential Health Effects

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.

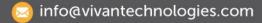
Explosion data – sensitivity to mechanical impact: No data available. Explosion data – sensitivity to static discharge: No data available.

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.

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/cm³ pH: 9.1 at 10g/l

Melting point: $204 - 207^{\circ}\text{C} (399 - 405^{\circ}\text{F})$

Boiling point:

Flash point:

Auto-ignition temperature:

Ignition temperature:

No data available

170°C (338°F)

310.5°C (590.9°F)

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/kgInhalation LD50: Rat $-3900 \text{ mg/m}^3 - 1 \text{ hr}$

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:

Teratogenicity:

Aspiration hazard:

Specific target organ toxicity:

Carcinogenicity:

No data available

No data available

No data available

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

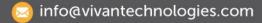
Proper shipping name: Flammable Solid, Organic, N.O.S. (Sodium Dodecyl Sulphate)

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 Highly toxic by inhalation

Serious Toxic Effects

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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