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## 1. PRODUCT AND COMPANY IDENTIFICATION

### Product identifier

Trade name : Biosperse™ 3001  
MICROBIOCIDE  
™ Trademark, Solenis or its subsidiaries or affiliates,  
registered in various countries

Substance name : BIOSPERSE 3001 SG

Substance No.

### Recommended use of the chemical and restrictions on use

<b>Details of the supplier of the safety data sheet</b> Solenis Singapore Pte Ltd #07-01/02 Pantech 21 Singapore 128388 Singapore  EHSProductSafetyTeam@solenis.com	<b>Emergency telephone number</b> 001 800-7653-6472 , or contact your local emergency telephone number at 995  <b>Product Information</b> +65 6775 5366
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## 2. HAZARDS IDENTIFICATION

### GHS Classification

Corrosive to metals : Category 1

Skin corrosion/irritation : Category 1

Serious eye damage/eye irritation : Category 1

Acute aquatic toxicity : Category 1

Chronic aquatic toxicity : Category 1


### GHS Label element

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

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Precautionary statements : **Prevention:**  
P234 Keep only in original container.  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.  
P363 Wash contaminated clothing before reuse.  
P390 Absorb spillage to prevent material damage.  
P391 Collect spillage.  
**Storage:**  
P405 Store locked up.  
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

No information available.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

**Hazardous components**

Chemical Name	CAS-No.	Classification	Concentration (%)
SODIUM HYPOCHLORITE	7681-52-9		12,50

**4. FIRST AID MEASURES**

General advice : Move out of dangerous area.  
Consult a physician.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.

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- If inhaled : Move to fresh air.  
 If breathed in, move person into fresh air.  
 Keep patient warm and at rest.  
 If unconscious place in recovery position and seek medical advice.  
 If symptoms persist, call a physician.
- In case of skin contact : If on skin, rinse well with water.  
 Wash contaminated clothing before re-use.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 Continue rinsing eyes during transport to hospital.  
 Remove contact lenses.  
 Protect unharmed eye.
- If swallowed : Get medical attention immediately.  
 Do NOT induce vomiting.  
 Rinse mouth with water.  
 Do not give milk or alcoholic beverages.  
 Never give anything by mouth to an unconscious person.  
 If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:  
 stomach or intestinal upset (nausea, vomiting, diarrhea)  
 irritation (nose, throat, airways)  
 Cough  
 discomfort in the chest  
 hair loss  
 lung edema (fluid buildup in the lung tissue)  
 Difficulty in breathing  
 Causes serious eye damage.  
 Causes severe burns.
- Notes to physician : No hazards which require special first aid measures.

**5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
 Water spray  
 Foam  
 Carbon dioxide (CO<sub>2</sub>)  
 Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

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- Hazardous combustion products : Chlorine  
hydrogen chloride  
Sodium oxides
- Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.  
  
Product is compatible with standard fire-fighting agents.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.  
Comply with all applicable federal, state, and local regulations.
- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Do not breathe vapours/dust.  
Container hazardous when empty.  
Avoid contact with skin and eyes.  
Smoking, eating and drinking should be prohibited in the application area.  
For personal protection see section 8.  
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Observe label precautions.  
Electrical installations / working materials must comply with the technological safety standards.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

**Engineering measures** : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

### Personal protective equipment

#### Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

#### Eye protection

: Wear chemical splash goggles and face shield when there is potential for exposure of the eyes or face to liquid, vapor or mist.  
Maintain eye wash station in immediate work area.

#### Skin and body protection

: Wear as appropriate:  
impervious clothing  
Chemical resistant apron  
Safety shoes  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.  
Discard gloves that show tears, pinholes, or signs of wear.

#### Hygiene measures

: Wash hands before breaks and at the end of workday.  
When using do not eat or drink.  
Ensure that eyewash stations and safety showers are close to the workstation location.  
When using do not smoke.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

Colour : yellow, green

Odour : No data available

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Boiling point/boiling range : 100 °C Calculated Phase Transition Liquid/Gas

Flash point : Not applicable

Evaporation rate : No data available

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Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: 23,3333333 hPa Calculated Vapor Pressure
Relative vapour density	: No data available
Relative density	: No data available
Density	: +/- 0.05 1,23 g/cm <sup>3</sup> (25 °C)
Solubility(ies)	
Water solubility	: completely miscible
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Oxidizing properties	: No data available

**10. STABILITY AND REACTIVITY**

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Product will not undergo hazardous polymerization.
Conditions to avoid	: excessive heat Do not allow evaporation to dryness. Exposure to light.
Incompatible materials	: Acids Alcohols Ammonia Combustible material ethers Heavy metals

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Hydrocarbons  
isocyanates  
Organic materials  
oxidizable substances  
Reducing agents

Hazardous decomposition products : acid vapors  
Chlorine  
hydrogen chloride  
Oxygen  
Sodium oxides

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**11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : Inhalation  
Skin contact  
Eye Contact  
Ingestion

**Acute toxicity**

Not classified based on available information.

**Components:**

SODIUM HYPOCHLORITE:

Acute oral toxicity : LD 50 (Rat): > 5 g/kg

Acute dermal toxicity : LD50 (Rabbit, male and female): > 20.000 mg/kg

**Skin corrosion/irritation**

Causes severe burns.

**Product:**

Remarks: Causes severe skin burns and eye damage.

**Components:**

SODIUM HYPOCHLORITE:

Result: Corrosive to skin

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Product:**

Remarks: May cause irreversible eye damage.

**Components:**

SODIUM HYPOCHLORITE:

Result: Corrosive to eyes

**Respiratory or skin sensitisation**

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

SODIUM HYPOCHLORITE:

Genotoxicity in vitro : Test Type: Ames test

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Test species: Salmonella typhimurium  
Metabolic activation: without metabolic activation  
Result: negative

: Test Type: comet assay  
Test species: Human lymphocytes  
Metabolic activation: without metabolic activation  
Result: positive

Genotoxicity in vivo : Test Type: chromosome aberration assay  
Test species: Mouse (male)  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Reproductive toxicity**

Not classified based on available information.

**STOT - single exposure**

Not classified based on available information.

**Components:**

SODIUM HYPOCHLORITE:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

**STOT - repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

**Further information****Product:**

Remarks: No data available

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**12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:**

SODIUM HYPOCHLORITE:

Toxicity to fish : LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss)): 0,05 - 0,071 mg/l  
Exposure time: 96 h  
Method: Flow through  
Remarks: Mortality

LC 50 (Fathead minnow (Pimephales promelas)): 0,06 - 0,11 mg/l  
Exposure time: 96 h  
Method: Flow through  
Remarks: Mortality



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Toxicity to daphnia and other aquatic invertebrates : LC 50 (Water flea (Daphnia magna)): 0,045 - 0,068 mg/l  
Exposure time: 48 h  
Method: Flow through  
Remarks: Mortality

M-Factor (Acute aquatic toxicity) : 10

#### **Persistence and degradability**

##### **Components:**

SODIUM HYPOCHLORITE:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

#### **Bioaccumulative potential**

##### **Components:**

No data available

#### **Mobility in soil**

##### **Components:**

No data available

#### **Other adverse effects**

No data available

##### **Product:**

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Very toxic to aquatic life with long lasting effects.

##### **Components:**

### **13. DISPOSAL CONSIDERATIONS**


#### **Disposal methods**

General advice : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

### **14. TRANSPORT INFORMATION**

#### **International transport regulations**

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**REGULATION**

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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**INTERNATIONAL MARITIME DANGEROUS GOODS**

UN	1791	HYPOCHLORITE SOLUTION	8		III
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**INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO**

UN	1791	Hypochlorite solution	8		III
----	------	-----------------------	---	--	-----

**INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER**

UN	1791	Hypochlorite solution	8		III
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**CHINA - ROAD**

UN	1791	HYPOCHLORITE SOLUTION	8		III
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**CHINA - RAIL**

UN	1791	HYPOCHLORITE SOLUTION	8		III
----	------	-----------------------	---	--	-----

**CHINA - INLAND WATERWAYS**

UN	1791	HYPOCHLORITE SOLUTION	8		III
----	------	-----------------------	---	--	-----

\*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Marine pollutant	yes
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Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

**15. REGULATORY INFORMATION**


**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.**

Singapore. Hazardous Substances Control List (Environmental Pollution Cont Substances) : Neither banned nor restricted

Singapore. CWC. Chemical Weapons (Prohibition) Act, (Schedule, Parts 1-3) as amended : Neither banned nor restricted

Singapore. Explosive Precursors (Arms and : Neither banned nor restricted

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Explosives Act, Second Schedule, 2003 Revision, as amended)

Singapore. Hazardous Substances Transport, Storage & Use Permissions (Environmental Protection and Management (Hazardous Substances) Regulations) : Neither banned nor restricted

**The components of this product are reported in the following inventories:**

- ENCS : On the inventory, or in compliance with the inventory
- KECL : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- AUSTR : On the inventory, or in compliance with the inventory
- PHIL : On the inventory, or in compliance with the inventory
- TSCA : On the inventory, or in compliance with the inventory
- EINECS : On the inventory, or in compliance with the inventory
- DSL : On the inventory, or in compliance with the inventory

**Inventories**

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECL (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

**16. OTHER INFORMATION**

**Further information**


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**Full text of H-Statements referred to under sections 2 and 3.**

- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

**Further information**

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

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Sources of key data used to compile the Safety Data Sheet

Key literature references and sources of data

SOLENIS Internal data

SOLENIS internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.

ICxx : Inhibitory Concentration for xx of a substance

Ecxx : Effective Concentration of xx

N.O.S.: Not Otherwise Specified

OECD : Organization for Economic Co-operation and Development

OEL : Occupational Exposure Limit

P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic

PPE : Personal Protective Equipment

STEL : Short-term exposure limit

STOT : Specific Target Organ Toxicity

TLV : Threshold Limit Value

TWA : Time-weighted average

vPvB : Very Persistent and Very Bioaccumulative

WEL : Workplace Exposure Level

AU OEL : Australia. Workplace Exposure Standards for Airborne Contaminants.

CN OEL : China. Occupational Exposure Limits

HK OEL : Hong Kong. Code of Practice on Control of Air Impurities (Chemical Substances) in the Workplace


IN OEL : India. Permissible levels of certain chemical substances in work environment.

ID OEL : Indonesia. Occupational Exposure Limits

JPJSOH OEL : Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits

JPISHL OEL : Japan. Administrative Control Levels

KOR OEL : Korea. Occupational Exposure Limits

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MY OEL : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of  
 Chemicals Hazardous to Health)  
 NZ OEL : New Zealand. Workplace Exposure Standards for Atmospheric Contaminants  
 PH OEL : Philippines. Threshold Limit Values For Airborne Contaminants  
 SG OEL : Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure  
 Limits of Toxic Substances  
 TW OEL : Taiwan. Standards on the Concentration Levels of Hazardous Substances in the Air at  
 Workplace  
 TH OEL : Thailand. Occupational Exposure Limits  
 VN OEL : Vietnam. Occupational Exposure Limits