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Material Safety Data Sheet

Section 1- PRODUCT AND COMPANY IDENTIFICATION

Product Name	<ul style="list-style-type: none"> ▪ VIRUOFF Chlorine dioxide Gas Generator For 1.5g ▪ VIRUOFF Chlorine dioxide Gas Generator For 10g
Synonyms	Natural mineral granule containing Sodium Chlorite
Company Name	OHKI PHARMACEUTICAL CO.,LTD.
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Section 2- HAZARDS IDENTIFICATION

<GHS (Global Harmonized System of Classification and Labeling of Chemicals) Classification>

Physical Hazards

Explosive	Not applicable
Flammable Gases	Not applicable
Flammable Solids	Not applicable
Self-Reactive chemicals	Not applicable
Ryrophoric Solids	Not applicable
Self-Heating chemicals	Not applicable
Self-Reactive and Flammable Solids by contact with water	Not applicable
Oxidizing Solids	Not applicable
Organic Peroxides	Not applicable
Corrosive to metal	Classification not possible

Health Hazards

Acute toxicity (Oral)	Category 5
Acute toxicity (Dermal)	Category 5
Acute toxicity (Inhalation:Gas)	Classification not possible
Acute toxicity (Inhalation:Vapores)	Classification not possible
Acute toxicity (Inhalation:Dusts and Mists)	Classification not possible
Skin corrosion/irritation	Category 3 (NaClO ₂)
Eye corrosion/irritation	Category 2B (NaClO ₂)
Respiratory sensitization	Classification not possible
Skin sensitization	Classification not possible
Germ Cell Mutagenicity	Category2
Carcinogenicity	Classification not possible
Reproductive Toxicity	Classification not possible
Specific Target Organ toxicity(Single Exposure)	Category2 (Respiratory organ, Blood,)
Specific Target Organ toxicity (Repeated Exposure)	Category 2 (Respiratory organ, Blood)

Environmental Hazards

Hazardous to the Aquatic Environment (Acute) Category 3 (by evaluation data)
 Hazardous to the Aquatic Environment (Chronic) Classification not possible

GHS Label Elements

Pictograms or hazard symbols

**Signal Words****DANGER****Hazard Statements**

- Stable under normal condition of handling.
- May be harmful if swallowed.
- Causes severe chemical skin burns and eye damage.
- Causes damage to the respiratory organ.
- May liberate a large amount of chlorine dioxide gas by contact with strong acids.
 If inhale a large amount of sodium chlorite, can cause respiratory tract irritation, coughing, wheezing and burns of the mucous membranes and may lead to pulmonary edema and bronchitis.

Precautionary Statements**Prevention**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read
- Do not eat, swallow.
- Wear respiratory protection(Gas mask) when dealing with a large amount of this product.
- Avoid contact with strong acids.
- Avoid contact with heat & fire.
- Use only in a well-ventilated area.
- Avoid release to the environment.

Response

- If inhaled : If breathing is difficult, remove the victim to an area containing fresh air and allow him/her to rest in a position that is comfortable for breathing.
 Get medical advice/attention if you feel unwell.
- If enters eyes : Rinse continuously with water for several minutes. Remove contact lenses, If present and easy to do. Get medical advice/attention if you feel unwell.
- If swallowed : Immediately call a Poison control center or Doctor/Physician.
 Rinse mouth.
- If on skin : Gently wash with plenty of soap and water. Take off contaminated clothing and wash before reuse.
- In case of fire : Use an appropriate Extinguishing Media for extinction.

Storage

- Collect spillage
- Store in a well-ventilated place. Keep container tightly closed.
- Store away from other materials, especially Strong acids.

Disposal

- Consign disposal of the contents and container to disposal-specialized services approved by the local, regional, national, or international governor.

Any National or**Regional Information**

- Not available.

Section 3- COMPOSITION / INFORMATION ON INGREDIENTS

Division of Single / Mixture : Mixture
Chemical name or common name : Natural mineral granule containing Sodium Chlorite
Content of ingredients

Ingredients	Content %(w/w)	Chemical Formula	Japan ENCS No.	CAS No.
Natural Zeolite	92%<	(Ca,K ₂ ,Na ₂) [Al ₂ Si ₅ O ₁₂] ₂ · 7H ₂ O	none	—
Sodium chlorite	<5%	NaClO ₂	1-238	7758-19-2
Water	<3%*	H ₂ O	—	7732-18-5

Section 4- FIRST AID MEASURES

Inhalation Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption Remove contaminated clothing. Wash affected area with plenty of water for 15-20minutes. Seek medical attention if irritation occurs persists.

Eyes Contact Rinse immediately with a large amount of water for at least 20 minutes. Seek immediate medical attention.

Ingestion Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the Poison control center or Doctor. Do not give anything by mouth.

Additional Information Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage.

Section 5- FIRE FIGHTING MEASURES

Suitable Extinguishing Media Plenty of water

Unsuitable Extinguishing Media Carbon dioxide

Special Protective Equipment, Precautions for Fire-Fighters Use Self-contained breathing apparatus and protective clothing.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions Avoid breathing a large amount of chlorine dioxide gas liberated from this product.
Ensure adequate ventilation. Wear respiratory protection.

Environmental Precautions Must not discharge it all over the environment.
Do not let product enter drains. Be careful not drain into the river directly.

Methods for Spillage and Cleaning up Spillage : When the product is spilt from the container, clear it into other container immediately, Sprinkle aqueous solution of sodium sulfite on the contaminated place and wash with water.

Section 7- HANDLING AND STORAGE

Handling Procedures Avoid contact with eyes, skin. Avoid ingestion
Wear suitable protectors so that the product will not contact with the eyes, skin, etc.
Wash thoroughly after handling.
Obtain special instructions before use. Do not handle until all safety precautions

	have been read and understood.
	Use only in a well-ventilated area.
Storage Requirements	Store in a cool, dark, dry location, away from other materials, especially Strong acids.
	Keep out of children's reach
Container to be used	Use the water and moisture proofed one

Section 8- EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limit	Not regulated
ACGIH	Not regulated
	cf) Regulation on Chlorine dioxide gas
	<ul style="list-style-type: none"> • ACGIH : TLV-TWA 0.1ppm (0.28mg/m³) <li style="padding-left: 2em;">TLV-STEL 0.3ppm (0.83mg/m³) • OSHA : TWA 0.1ppm
Measures of facilities	Use a device/machinery sealed up as much as possible or a local exhaust.
Protective equipment	
Respiratory organs	Gas mask for halogen gas
Hands	Wear protection gloves with the corrosion resistance
Eyes	Wear goggle-type or protective eyewear
Skin and body	Wear working clothes and a protection apron

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Gray~light-brown granule(0.6~1.9mm)
Odor	Weak irritating odor of chlorine dioxide
pH	Not measurable
Bulk density	0.65-0.75
Water solubility	Insoluble 【Only adding ingredients (NaClO ₂) is soluble】
Combustibility	Non-combustible
Flammability or explosive	No data
Decomposition Temperature	190°C< (Sodium chlorite)

Section 10- STABILITY AND REACTIVITY

Stability	Stable under normal condition of handling.
Non-compatibility with other Substances	Can react violently with strong acids, toxic chlorine dioxide gas liberate rapidly.
Hazardous Decomposition of Products	Toxic chlorine dioxide gas may be release when this Product decomposes. <Hazards of chlorine dioxide gas> <ul style="list-style-type: none"> • 6vol%< : Strong toxicity • 15 vol%< : Explosive

Section 11- TOXICOLOGICAL INFORMATION

Acute Toxicity (Oral)	Rat LD ₅₀ : >7000mg/kg (Category 5)
Acute Toxicity (Dermal)	Rabbit LD ₅₀ : >2000mg/kg (Category 5)
Acute toxicity (Inhalation:Gas)	Chlorine dioxide gas data : <2.6ppb/m ³ · g · h (Classification not possible)
Acute toxicity(Inhalation:Vapor)	No data →Classification not possible
Acute toxicity(Inhalation:Dust)	No data →Classification not possible
Skin corrosion/irritation	Weak irritation (Rabbit) → (Category 3)

Serious eye damage/irritation	Sodium chlorite : Category 2A~2B⇒content <1/20 → (Category 2B)
Respiratory sensitization	No data →Classification not possible ···NaClO ₂ data : weak influence (IRAC52-1991),No influence(RTECS-2003) (Category 2)
Skin sensitization	No data →Classification not possible
Germ Cell Mutagenicity	NaClO ₂ data : Category 2→ (Category 2)
Carcinogenicity	NaClO ₂ data : not classifiable by IARC,EPA) →Classification not possible
Reproductive Toxicity	NaClO ₂ data : not classifiable by IARC,EPA) →Classification not possible
Specific Target Organ toxicity (Single Exposure)	NaClO ₂ data : Category 2 → (Category2)
Specific Target Organ toxicity (Repeated Exposure)	NaClO ₂ data : Category 2 → (Category2)
Aspiration Hazard	No data →Classification not possible

(Remarks)

Above toxicity level are based on the information about the ingredients used in the product. The each ingredients are present in a state of being diluted 20-fold or more in the product, Therefore, the toxicity of the product may have weakened than the level described above.

Section 12- ECOLOGICAL INFORMATION

Hazardous to the Aquatic (Acute)	EC ₅₀ (48h)、Daphnia : 13mg/L →Category 3
Hazardous to the Aquatic (Chronic)	No data →Classification not possible
Biodegradability	High Biodegradability.
Bioaccumulative Potential	No data
Mobility in Soil	No data
Other adverse effects	This product has a weak toxicity to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, estuaries,oceans.

Section 13- DISPOSAL CONSIDERATIONS

Waste treatment methods	For disposing the product commit to a licensed disposal company.
Contaminated packaging	In case of contamination, follow the law concerned and the standard of the local government after washing contaminated things in water. Dispose of as unused product.

Section 14- TRANSPORT INFORMATION

International regulation	
UN identification number	Not applicable (IMDG, IATA-DGR, ADR)
UN proper shipping name	Not applicable (IMDG, IATA-DGR, ADR)
UN classification	Not applicable (IMDG, IATA-DGR, ADR)
Packaging group	Not applicable (IMDG, IATA-DGR, ADR)
Marine pollutant	Not applicable
Special precautions	Confirm that there are not breakage and a leak in a container. Do not topple a container. Do not make it fall. Load carefully not to damage a container and ensure prevention of collapse of cargo piles.

Section 15- REGULATORY INFORMATION**Japan regulation****Industrial Safety and Health Law**

Not applicable

Fire service Act

Not applicable (Not Oxidizing Solids from the test results with the standard test method.)

Poisonous and Deleterious Substances Control ActNot applicable (NaClO₂ <25%)**High Pressure Gas Safety Law**

Not applicable

Regulation for the carriage and storage of dangerous goods in shipNot applicable (Not Oxidizing Solids, and Corrosive to metal : Judging from the test results according to the test method of UN recommendations 「Manual of Tests and Criteria, 4th revised edition 」**PRTR**

Not applicable

Individual country regulations

Not available

Section 15-OTHER INFORMATION

Reference

- Sodium chlorite MSDS (Japan Advanced Information Center of Safety and health)
- International Chemical Safety Cards.(Sodium chlorite)
- Hazardous Chemical Data Book edited by The Chemical Daily Co., LTD.(1988)

About mention contents

The information contained herein is based on several references and the present state of our knowledge. However the MSDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product.