



PUROGENE® SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Identifier:

Purogene®

Other means of Identification:

Sodium chlorite solution

Recommended Use:

Purogene® is a registered antimicrobial pesticide (EPA Registration Number: 9804-5). Purogene® is used to sanitize potable water storage tanks and to disinfect non-porous, hard surfaces in aircraft. Consult the Purogene® label for a complete list of permitted uses.

Chemical Manufacturer:

Bio-Cide International, Inc.
2650 Venture Drive
Norman, Oklahoma 73069
Phone: (405) 329-5556
Fax: (405) 329-2681

Emergency Telephone Number:

Chemtrec for transportation emergencies in the United States, Canada, Puerto Rico, and Virgin Islands 1-800-424-9300; All other areas 1-703-527-3887
American Association of Poison Control Centers 1-800-222-1222
Chemtrec contract number 2749

SECTION 2: HAZARD(S) IDENTIFICATION

Classification in accordance with OSHA 29 CFR 1910.1200 (d):

Eye Damage/Irritation: Category 2B

Specific Target Organ Toxicity (Repeated Exposure): Category 2

GHS Label elements, including precautionary statements:

Signal word: **Warning**

Pictograms:

**Hazard Statements:**

Causes eye irritation.

May cause damage to blood, spleen and stomach through prolonged or repeated exposure by oral ingestion.

Precautionary statements:

Wash hands thoroughly after handling.

Do not breathe mist or spray.

Response statements:

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists; Get medical attention.

Get medical attention if you feel unwell.

Absorb spillage with non-combustible material.

Dispose of contents and container in accordance with local, state and federal regulations.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Substance	CAS #	Concentration
Sodium chlorite	7758-19-2	1 – 5%
Water	7732-18-5	90 – 100%

If the specific chemical identity and/or the exact percentage of an ingredient are not specified, the information has been withheld as a trade secret.

SECTION 4: FIRST-AID MEASURES

The following procedures are recommended as emergency first aid only. They are not intended to replace or supplant the treatment advice of a physician or other authorized health care specialist.

Inhalation: Move person to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

Eye Contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

If Swallowed: Call a 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Chlorine dioxide vapors are emitted when this product contacts acids or chlorine. If these vapors are inhaled move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Monitor patient closely for delayed development of pulmonary edema which may occur up to 48-72 hours post inhalation.

SECTION 5: FIRE-FIGHTING MEASURES

Substance does not burn but supports the combustion of flammable substances through the liberation of oxygen. Water is the preferred extinguishing media when it is compatible with the burning substance. If water is not compatible, use dry powder extinguisher.

Burning will release hydrogen chloride gas (HCl) and oxides of sodium (NaO_x).

Firefighters should wear self-contained breathing apparatus (SCBA) if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES**SPILL CONTAINMENT:**

Avoid allowing spilled material to dry to crystalline sodium chlorite. Dry sodium chlorite is a strong oxidizer and creates a potential fire hazard when in contact with combustible materials. Use a non-combustible absorbent such as sand or vermiculite to absorb spilled or leaked Purogene before it dries. Remove any powder residue from dried Purogene by rinsing with water. Absorb rinse water with sand or other non-combustible absorbent and discard. Do not discharge this product to storm drains or to any surface or groundwater source unless specifically allowed under a valid NPDES permit.

SECTION 7: HANDLING AND STORAGE

HANDLING:

Use product only as directed by the label. Avoid contact with skin and eyes; avoid breathing any vapors or fumes resulting from product activation. Wash thoroughly after handling. Thoroughly rinse all protective gear and handling equipment, such as transfer pumps and lines, with water prior to reuse or storage. Keep away from children, animals, and unauthorized personnel.

PRODUCT STORAGE:

Store in a cool, dry, well-ventilated location away from acids, chlorine and chlorine compounds, hypochlorite (bleach), organic solvents, sulfur and sulfite compounds, phosphorus, combustible/flammable materials, and direct sunlight. Keep containers tightly closed when not in use and open carefully to prevent spillage. Storage on wooden floors and pallets is not recommended. Do not contaminate water, food or feed by storage or disposal.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

No Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLV) have been established for this product.

Wear splash proof goggles to protect the eyes. Use gloves and protective clothing to protect against skin contact. Remove contaminated clothing immediately and laundry before reuse.

Use directions for this product typically require its activation by mixing with GRAS (generally regarded as safe) acids. The reaction leads to formation of aqueous chlorine dioxide (ClO₂) gas. ClO₂ has a PEL of 0.1 ppm and a STEL of 0.3 ppm. Applications where activated product is used in confined space or has the potential for exposure to the worker, such as in a fogging or spraying application, respiratory protection is required.

RESPIRATORY PROTECTION:

In accordance with OSHA regulations (29 CFR 1910.134 and 29 CFR 1910.1000) use a NIOSH approved air purifying respirators (APR) with cartridges approved for chlorine dioxide (ClO₂)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

- (a) **Appearance (physical state, color, etc.):** Clear to pale yellow liquid
- (b) **Odor:** Slight odor of chlorine
- (c) **Odor threshold:** Not determined
- (d) **pH:** 8.2 – 8.5
- (e) **Melting point/freezing point:** 28.9°F (-1.72°C)
- (f) **Initial boiling point and boiling range:** 213°F (100.5°C)
- (g) **Flash point:** Not applicable
- (h) **Evaporation rate:** Comparable to water
- (i) **Flammability (solid, gas):** Not flammable

- (j) **Upper/lower flammability or explosive limits:** Not flammable
(k) **Vapor pressure:** 23.7 mm Hg (25°C)
(l) **Vapor density:** 0.02 kg/m³
(m) **Relative density:** 1.030 g/ml (20°C)
(n) **Solubility(ies):** Miscible (water)
(o) **Partition coefficient: n-octanol/water:** Not applicable (not a mixture)
(p) **Auto-ignition temperature:** Not applicable
(q) **Decomposition temperature:** Not determined
(r) **Viscosity:** 0.6409 mm²/ sec

SECTION 10: STABILITY AND REACTIVITY

- (a) **Reactivity:** Not reactive under normal temperatures and pressures.
(b) **Chemical stability:** Stable at normal temperatures and pressures.
(c) **Possibility of hazardous reactions:** Contact with acids or chlorine can result in the evolution of chlorine dioxide gas (ClO₂)
(d) **Conditions to avoid:** Avoid heat, flames, sparks and other sources of ignition. Avoid evaporation to dryness. Dried material can ignite upon contact with combustibles. Avoid contamination with foreign materials. Avoid exposure to sunlight or ultraviolet light.
(e) **Incompatible materials:** Acids, reducing agents, combustible material, oxidizing agents, hypochlorites, organic solvents and compounds, garbage, dirt, organic materials, household products, chemicals, soap products, paint products, vinegar, beverages, oils, pine oil, dirty rags, sulfur-containing rubber, or any other foreign matter.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely routes of exposure:

- Oral:** Not classified but irritating to gastrointestinal tract if swallowed.
Dermal: Not classified but may produce mild skin irritation in some individuals.
Inhalation: Not classified, but may induce mild respiratory symptoms.
Eye contact: May cause moderate, reversible eye irritation.

Acute Toxicity, Oral: LD50 >2000mg/kg

Acute Toxicity, Dermal: LD50 >2000mg/kg

Acute inhalation toxicity: LC50 >5mg/L over 4-hour exposure (ATE)

Serious eye damage/eye irritation: Causes moderate eye irritation.

Respiratory Sensitization: Not classified.

Skin Sensitization: Not classified.

Specific target organ toxicity – single exposure: Not classified.

Specific target organ toxicity – repeated exposure: May cause damage to blood, spleen and stomach through prolonged or repeated exposure by oral ingestion.

Reproductive toxicity: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Sodium chlorite is not classified as a carcinogen by NTP, IARC, or OSHA

SECTION 12: ECOLOGICAL INFORMATION

Purogene is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, rivers or streams. Do not discharge effluent containing this product to sewer systems without first notifying the sewage treatment plant. Purogene does not bio-accumulate.

SECTION 13: DISPOSAL CONSIDERATIONS

Product Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Do not reuse or refill this container. Offer for recycling if available. Offer for reconditioning if appropriate. Triple rinse container, or equivalent, promptly after emptying.

Triple rinse as follows: Empty remaining contents into application equipment or mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip the container on its side and roll it back and forth, ensuring at least one complete revolution for 30 seconds. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this process two more times.

SECTION 14: TRANSPORT INFORMATION

US Department of Transportation: Not regulated for transport

IATA: Not regulated for transport

IMDG: Not regulated for transport

SECTION 15: REGULATORY INFORMATION

U.S. REGULATIONS

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

Not regulated.

EPCRA SECTION 313 (40 CFR 372.65):

Not regulated.

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

All components are listed or exempt.

Canadian Chemical Inventory:

All components of this product are listed on either the DSL or the NDSL

STATE Regulations

Contact your Kemin account representative for state-specific regulatory information, including state pesticide registration status.

FIFRA Regulations:

Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), EPA Reg. No. 9804-5 (Purogene®)

FIFRA Labeling Requirements:

This chemical is a pesticide product registered by the United States Environmental Protection Agency and it subject to certain labeling requirement under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

FIFRA Signal Word – CAUTION

Corrosive

Harmful if swallowed

Avoid Breathing vapor or spray mist
Causes moderate eye irritation
Remove contaminated clothing and wash clothing before reuse
Wash thoroughly with soap and water after handling
Handlers applying chlorine dioxide must wear gloves
This pesticide is toxic to fish and aquatic invertebrates

SECTION 16: OTHER INFORMATION

NOTICE: Manufacturer believes the information contained herein is accurate; however we make no guarantees with respect to such accuracy and assume no liability in connection with the use of the information contained herein by any party. Any party using this product should review all such laws, rules or regulations prior to use.

NO WARRANTY IS MADE, EXPRESS OR IMPLIED FOR A PARTICULAR PURPOSE OR OTHERWISE

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