# Storage and Disposal

**Product Storage:** Store in a cool, dry, well-ventilated location away from acids, chlorine and chlorine compounds, hypochlorites (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.

**Container Disposal:** Triple rinse. Then offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill, or by incineration; or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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

# Precautionary Statements

**Hazard to Humans & Domestic Animals:** Harmful if swallowed. Harmful if inhaled. Avoid breathing vapor or spray mist. Causes moderate eye irritation. Avoid contact with eyes and clothing. Wash thoroughly with soap and water after handling.

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**FIRST AID**

| If inhaled | - Move person to fresh air.<br>  - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.<br>  - Call a poison control center or doctor for further treatment advice. |
| If on skin or clothing | - Take off contaminated clothing.<br>  - Rinse skin immediately with plenty of water for 15-20 minutes.<br>  - Call a poison control center or doctor for treatment advice. |
| If in eyes | - Hold eye open and rinse slowly and gently with water for 15-20 minutes.<br>  - Remove contact lens, if present, after the first 5 minutes, then continue rinsing eye.<br>  - Call a poison control center or doctor for treatment advice. |
| If swallowed | - Call a poison control center or doctor immediately for treatment advice.<br>  - Have person sip a glass of water if able to swallow.<br>  - Do not induce vomiting unless told to do so by a poison control center or doctor.<br>  - Do not give anything by mouth to an unconscious person. |

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**Environmental Hazards**

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other water unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

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**Activation**

The active biocidal component of Purogene® system is free chlorine dioxide. Unactivated Purogene® in the neutral to mildly alkaline pH ranges is bactericidal. For higher level microbial control, such as disinfection and sanitization, activation of Purogene® is required to generate free chlorine dioxide. The use of citric acid as an activator is specified in most Purogene® applications. Alternative to citric acid for activation include GRAS organic acids such as acetic acid, and inorganic acids such as phosphoric, hydrochloric, and sulfuric acids. Activation equivalent to that of citric acid may be achieved by adjusting the Purogene® solution to pH 2.3 with an alternative acid. The activated Purogene® is then diluted to the required use concentration in accordance with label instructions. For food processing applications only food grade activator acids may be used. Bio-Cide International, Inc., or your Purogene® distributor can guide you in proper activation techniques.

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**To Control the Spread of Late Blight, Soft Rot, Dry Rot, Silver Scurf, Ring Rot, Pink Rot, Black Scurf and Other Tuber Disease Causing Organisms in Potato Storage Sheds:**

**Directions for Use:** It is a violation of federal law to use this product in a manner inconsistent with its labeling.

**Activation of Purogene®:** Prior to dilution, the product concentrate must be activated by addition of a food grade acid in order to generate free chlorine dioxide. See below for directions on activation.

**For the Treatment of Water Used to Spray or Rinse Potatoes Prior to Storage:**

1. **Activation:** For foliar applications, activate 5 gallons of Purogene® by adding 25 oz. (1.5 lbs) of citric acid (99% fine granular), or 7.5 fl. oz. of 75% phosphoric acid, Wait 30 minutes.
2. **Dilution:** Dilute activated concentrate to 400 ppm. Add 5 gallons of activated Purogene® to 250 gallons of water to yield a 400 ppm solution.
3. **Apply:** 400 ppm solution directly on tubers going into storage using any appropriate means such as spraying of misting. For small volume applications, refer to the Technical Data Sheet.

**For the Treatment of Humidification Water to Control Tuber Disease Causing Organisms on Stored Potatoes:**

1. **Activation:** For humidification applications, activate 5 gallons of Purogene® by adding 7.5 oz. (0.47 lbs) of citric acid (99% fine granular), or 2.5 fl. oz. of 75% phosphoric acid. Wait 30 minutes.
2. **Dilution:** Dilute activated concentrate to 200 ppm. Add 5 gallons of Purogene® to 500 gallons of water to yield a 200 ppm solution.
3. **Continuous Treatment:** For continual treatment of high risk storage, an initial treatment up to 200 ppm may be added to the humidification as either a mist into the air stream, or as a fog directly into the plenums.
4. **For the periodic treatment:** of storage with unknown risk, a treatment up to 200 ppm may be applied as either a mist into the air stream, or as a fog directly into the plenums.

**Note:** If reducing the amount of water being added to potatoes in storage during fogging treatments, concentrations of up to 400 ppm of activated product may be applied to the air streams. Do not add more than 2.0 gallons of Purogene®/concentrate per month to humidification water per 500 tons of potatoes in storage.

**Owners/operators of potato storage facilities must ensure adequate protection of workers and handlers, according to the following guidelines:**

**Personal Protective Equipment**

Personal protective equipment (PPE) that must be worn during mixeren/loader task associated with pre-storage applications of Purogene® includes: chemical-resistant gloves, goggles/face shield, and NIOSH approved canister cartridge respirator rated for chlorine/acid gas vapors or specified for chlorine dioxide. Chemical-resistant gloves must be worn for all other humidifier activities in which the tank is placed in direct contact with either the wet treated potatoes (e.g., during inspection/disease monitoring in the storage shed) or the humidification water system/process water tank (during equipment cleaning/maintenance.)

**Restrictions**

Do not allow unprotected workers in the area to be exposed above the permissible exposure limit (PEL) of 0.1 ppm for an 8 hour time weighted average (TWA), or 0.3 ppm for any 15 minute short term exposure limit (STEL). Avoid storing product under conditions in which it could evaporate to a crystalline salt.

All potatoes treated must have a potable rinse applied before further processing. Avoid accidental contact with acids, citric acid compounds, hypochlorite (bleach), sulfur and sulfite compounds, phosphorus, organic solvents, and combustible/flammable materials. Exposure to acids or chlorine compounds can produce severe injury, coughing, and bronchoconstriction.

Do not allow chlorine dioxide to accumulate in confined spaces. Waste water containing activated Purogene® and its breakdown products like chlorite, chlorate, or chlorine ions will not be transferred to public water ways but kept in an open pond or reservoir to go through aeration (which helps in the dissociation of chlorine dioxide) in the confines of the treatment facility and only discarded after the levels of these pesticides are equal to or lower than the ones recommended by EPA’s Office of Water.