

PAK™ 27 Algaecide (Non-Copper Odor, Taste Control) Technical Data Sheet

Introduction

PAK™27 Algaecide is approved for use as an algaecide by the U.S. Environmental Protection Agency (EPA), and depending on state regulations, it may be considered a Restricted Use Pesticide. PAK™27 is also approved under NSF/ANSI Standard 60 (drinking water treatment chemicals). All ingredients in PAK™27 have either Generally Recognized as Safe (GRAS) food additive status from the U.S. Food and Drug Administration (FDA) or exemptions from tolerances from the U.S. EPA.

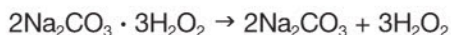
The active ingredient in PAK™27 is sodium carbonate peroxyhydrate which is an addition compound of sodium carbonate and hydrogen peroxide (H₂O₂). The nominal amount of sodium carbonate peroxyhydrate is 85% in PAK™27 which corresponds to 27.6% H₂O₂.

Applications

PAK™27 is approved for use as an algaestat or algaecide for the selective control of blue-green algae in lakes, ponds, drinking water reservoirs, irrigation, drainage and conveyance ditches, canals, laterals, estuaries, bayous, lagoons, water gardens and water features, impounded water and waste water, and aquaculture. The product is applied at 3.0 to 100 lbs/acre-ft (9.0 to 307 lbs./million gals) of water to give 0.3 to 10.2 ppm H₂O₂ by broadcasting the granules, manually or via a mechanical spreader, over the surface of the water.

Chemistry

Upon dissolution, PAK™27 releases its ingredients, soda ash (sodium carbonate) and hydrogen peroxide, into the water.



At the recommended application rate, the hydrogen peroxide component controls the growth of blue-green algae. At low dosage rates, green algae are not affected and are available to replenish dissolved oxygen in the water via photosynthesis.

Precautions

Decaying algae create a biological oxygen demand (BOD) which can deplete dissolved oxygen levels in the body of water. If the oxygen depletion is excessive, fish kills can occur. To avoid excessive oxygen depletion, apply PAK™27 early enough in the day so that 8 to 10 hours of daylight remain. Do not reapply within 48 hours. If treating a large lake or a heavy algae bloom, treat 1/3 to 1/2 of water area first and wait two to three days before treating the remainder of the water.

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Product Properties

Appearance
Sodium Carbonate Peroxyhydrate
Particle Size Distribution
850μ (US Sieve #20)
212μ (US Sieve #70)
Mean Particle Size (μ)
Attrition (ISO Method, %)
Fe (mg/kg)
pH 1% Solution

Standard Specifications

Free flowing white granules
≥ 85%
(% Retained on)
20 Maximum
90 Minimum
350 - 650

Advantages

Selectivity: At low dosage rates, PAK™27 is selective for blue-green algae.

Non-persistent: Unlike copper compounds, which accumulate in mud and sediments, PAK™27 adds no persistent toxic chemicals. Its decomposition leads to the formation of water and oxygen:



Environmentally-compatible: At the lower dosage rates, PAK™27 does not affect zooplankton. On the other hand, continuous use of copper compounds can accumulate, reaching concentrations which are toxic to fish, invertebrates, and aquatic plants.

Efficacy (independent of pH): PAK™27 is effective in acidic, neutral and alkaline bodies of water. Copper, however, precipitates under alkaline conditions (typically seen during the start of the eutrophication season). As a result, copper compounds are typically formulated with additional components to improve its solubility at alkaline pH. The additional components in these formulations add cost and carry their own specific safety concerns.

Efficacy against Cu-resistant algae: PAK™27 provides a solution for treating ecosystems containing copper resistant blue-green algae.

Non-Toxic: At low dosage rates, PAK™27 is non-toxic to the ecosystem. On the other hand, continuous use of copper compounds can accumulate, reaching concentrations which are toxic to fish, invertebrates, and aquatic plants.

Reduction of toxins: Some blue-green algae species produce toxins during their lifecycle. The use of PAK™27 as an algaestat can reduce toxin concentrations by preventing blooms from occurring.

Improvement of taste and odor: The hydrogen peroxide component of PAK™27 will oxidize reduced sulfur compounds and has been shown to reduce geosmin and methyl isoborneol concentrations in water. These components, associated with blue-green algae blooms, are responsible for imparting an off-taste and odor in drinking water reservoirs.

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Dredging concerns: The EPA is currently evaluating the necessity to regulate the use of sediments based on their composition. The use of non-persistent PAK™27 could reduce the need to landfill the material as low hazard waste.

Ease of handling: PAK™27 is a convenient form of hydrogen peroxide. It is a free-flowing, non-dusting granule. This solid form has safety and handling benefits over the use of concentrated liquid hydrogen peroxide.

Application Note:

Copper compounds may be applied in conjunction with PAK™27 as part of a comprehensive treatment program. In such a program, copper treatments and PAK™27 treatments would be staggered to maximize the efficacy of each treatment.

Technical Information

Active Ingredients: Sodium carbonate peroxyhydrate

Synonyms: Sodium carbonate peroxide

Formula: $2\text{Na}_2\text{CO}_3 \cdot 3\text{H}_2\text{O}_2$

CAS No.: 15630-89-4

Solubility (20°C, g/L): 120

Alkalinity (%Na₂CO₃): 67

Packaging

PAK™27 is shipped as a U.S. DOT 5.1 Oxidizer, Packing Group III. The product is shipped under the name: Sodium carbonate peroxyhydrate and carries the UN Identification UN1378. PAK™27 is available in 50-lb multi-wall kraft bags.

Customer Service

The safety of our customers is our highest concern. To ensure your safety, Solvay Chemicals, Inc. provides product safety and handling training. Additionally, the MSDS should be read and completely understood prior to any exposure to, handling of and/or use of, the product. For further information, please call 1-800-SOLVAY-C (1-800-765-8292.)

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Precautionary Statements

Hazards to Humans and Domestic Animals

DANGER: PAK™27 is corrosive. It causes severe eye damage and skin irritation. Do not get in eyes, on skin or clothing. Harmful if swallowed or inhaled. Avoid breathing dust. Wear protective eyewear (chemical goggles, face shield, or safety glasses). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse. When prolonged or frequent, repeated contact could occur, use chemically resistant gloves and full body clothing.

Physical and Chemical Hazards

- PAK™27 is an oxidizing agent.
- Damp product in contact with combustible materials may cause fire.

First Aid

IF IN EYES: Hold eyelids open and flush immediately with a steady, gentle stream of water for 15 minutes. Seek medical attention.

IF SWALLOWED: Call a physician. DO NOT induce vomiting or give anything by mouth to an unconscious person. Avoid alcohol.

IF ON SKIN: Wash with soap and water. Seek medical attention if irritation exists.

IF INHALED: Remove victim to fresh air. Seek medical attention.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

Safety

- KEEP OUT OF REACH OF CHILDREN.
- Ensure all personnel who may come in contact with this material are aware of the potential hazards, first aid measures and the proper storage and use techniques outlined in the MSDS.
- Storage and use areas should be equipped with a safety shower and eye wash station. Water is the preferred extinguishing medium in case of fire involving this product.

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Storage and Handling

- Store in a dry location away from heat and out of direct sunlight in containers fitted with safety valve or vent. Storage temperature: < 104°F (40°C).
- Store in an area away from acids, bases, metals, metal salts, reducing agents, organic materials and flammable substances.
- Never return unused product to container.
- Rotate inventories - first in, first out.
- Do not stack 50 lb. bags more than 8 bags high. Do not stack pallets. Maintain two feet of spacing between pallets of bags.
- Refer to label for specific disposal instructions.

It is a violation of State and Federal law to use this product in a manner inconsistent with its label instructions. The label must be in the possession of the user at the time of pesticide application.

Before using, read Material Safety Data Sheet (MSDS) for this chemical.

**Solvay Chemicals, Inc.
24 hour Emergency Phone Number - 800-424-9300 (CHEMTREC®)**

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