BUSAN® 77

Patents issued or pending in the U. S. A. and other countries

COMPOSITION

Active ingredient:

Poly[oxyethylene(dimethyliminio)ethylene-(dimethyliminio)ethylene dichloride] ..... 60 percent

Inert ingredients ..... 40 percent

(Weight of active ingredient per gallon = 5.8 pounds)

APPLICATIONS

Busan 77 is used to control algae, bacteria, and fungi in recirculating commercial and industrial water cooling towers and in fresh water for use in industrial processes. Busan 77 is also used to inhibit the growth of bacteria that cause degradation of cutting oils. Refer to the Product Data bulletin entitled *Busan 77- A Broad-Spectrum Microbicide Concentrate* for detailed directions on these applications.

Busan 77 is used to control the growth of algae in swimming pools. For maximum effectiveness, pools containing heavy growth of algae should be cleaned prior to using Busan 77.

For pools having just visible algae growth, add an initial dose of 11 to 17 fl. oz. of Busan 77 per 10,000 gal. of water and remove settled algae debris by cleaning.

For treatment of a freshly cleaned and filled pool, add initially 6 to 11 fl. oz. of Busan 77 per 10,000 gal. of water.

To maintain pools free of visible algae growth, subsequent additions of 2 to 4 fl. oz. of Busan 77 per 10,000 gal. of water should be made every 5 to 7 days after the initial treatment.

Uniform distribution of Busan 77 throughout the water in the pool is necessary for maximum effectiveness.

Busan 77 is compatible with those chemicals normally used to treat pools and is effective in both acid and alkaline pH. Busan 77 can be used in pools treated with chlorine stabilizers and may reduce the amount of those chemicals normally required. However, do not mix Busan 77 with concentrated dry or liquid chlorine products.

CAUTION

KEEP OUT OF REACH OF CHILDREN

Harmful if swallowed. Do not get in eyes. Avoid contact with skin. In case of contact, flush with plenty of water for at least 15 minutes. If eye irritation persists get medical attention. Avoid contamination of food.

Rinse empty container thoroughly with water and discard container.

This product is toxic to fish. Treated effluent should not be discharged where it will drain into lakes, streams, ponds, or public water. Apply this product only as specified on this label.

MANUFACTURED BY

BUCKMAN LABORATORIES, INC.

MEMPHIS, TENN. 38108, U.S.A.

EPA Reg. No. 1448-42-AA 9/74 EPA Est. No. 1448-TN-1

PRODUCT DATA

Buckman Laboratories, Inc.

APPLICATIONS

Busan 77 is a concentrate that can be diluted with water to prepare ready-to-use microbicides of any lower concentration, but in large industrial operations it can be dispensed directly from the shipping container without prior dilution. When Busan 77 is diluted with water before use, the amounts of diluted product required for the different applications will, of course, depend upon the concentration of active ingredient in the dilute solution. In the following, all references to amounts used are based on concentrated Busan 77 containing 60 percent active ingredient.

Busan 77 and dilutions of this product can be fed into systems by means of chemical-metering pumps or drip-feed devices, or they can be dispensed in suitable measuring containers.

Cooling Water Treatment

Busan 77 is used to control the growth of algae, bacteria, and fungi on cooling towers and other parts of commercial and industrial recirculating cooling water systems. As a general rule, it is recommended that before treatment of a cooling water system with Busan 77 is begun, the system should be cleaned thoroughly to remove all old algal growths, microbiological slime, and other deposits. The system then should be drained, flushed, and refilled with fresh water, and regular treatment with Busan 77 should be initiated.

To treat recirculating systems, an initial slug addition of 7 to 17 ml. of Busan 77 per cubic meter of water (0.9 to 2.2 U.S. fluid ounces of Busan 77 per 1,000 U.S. gallons of water) to provide a concentration of 8 to 20 parts per million of Busan 77 based on the total weight of water in the system is recommended. Repeat initial dosage until control is evident. Subsequent slug additions of 1.7 to 17 ml. of Busan 77 per cubic meter of water (0.22 to 2.2 U.S. fluid ounces of Busan 77 per 1,000 U.S. gallons of water) to provide a concentration of 2 to 20 parts per million of Busan 77 should be employed every 2 to 5 days or as needed. The required frequency of addition will depend upon the relative amount of bleedoff and the severity of the microbiological problem. Slug additions should be made in the sump of water cooling towers.

Industrial Fresh-Water Treatment

Busan 77 is used to control the growth of algae in holding ponds and reservoirs and to control the growth of bacteria and fungi in holding and processing tanks of industrial fresh-water systems supplying water to pulp and paper mills, textile mills, and other manufacturing plants. In such systems, it is employed either as a replacement for or as a supplement to the conventional treatment with chlorine or chlorine compounds. In pulp and paper mills, treatment of the fresh water with Busan 77 can make an important contribution to slime control. The use of Busan 77 as described will reduce the development of slime in fresh water pipes, fresh water spraying nozzles, and on the pulp and paper mill machine parts contacted by fresh water. However, Busan 77 is not recommended for use as the primary microbicide for pulp and paper mill slime control since adsorbents such as wood pulp rapidly adsorb the product and greatly reduce its concentration in the circulating water. Busan 77 should not be added to water used for drinking or food preparation.

For the control of algae, bacteria, and fungi in industrial fresh-water systems, Busan 77 is added at the rate of 0.8 to 8.8 ml. per cubic meter of water (1 to 11 U.S. fluid ounces of Busan 77 per 10,000 U.S. gallons of water) to provide a concentration of 1 to 10 parts per million of Busan 77. Treatment is usually made continuously and should be based on the amount of water entering a pond or reservoir or leaving the pond or reservoir and entering the intermediate processing operations. In some cases, regular treatment periods of several hours each day will provide adequate control of the microorganisms.

Cutting Fluids

Busan 77 is employed for the inhibition of bacterial degradation of aqueous solutions or emulsions of the cutting fluids or oils employed as lubricants or coolants in machining and processing of metals. It is specifically recommended for the preservation of water-based synthetic metalworking fluids based on amines, borates, phosphates, nitrates, etc., and also for the protection of those fluids based on soluble or emulsifying oils modified with nonionic surfactants. It is not recommended, however, for use in insoluble or straight oils or in fluids containing anionic surfactants.

For these applications, concentrations of 0.01 to 0.10 percent of Busan 77, based on the total weight of the cutting fluid, are recommended. In some cases, Busan 77 may be added to the concentrated fluids, and the amount of Busan 77 added then should be such that concentrations of 0.1 to 0.10 percent are obtained when the fluid is diluted with water for use in metalworking operations. For continued protection against bacterial degradation, treatment of the diluted cutting fluid should be repeated every four weeks. More frequent treatment may be necessary if excessive contamination of a particular cutting fluid system occurs. The latter condition may be indicated by the development of abnormal odors or an unusual appearance of the cutting fluid solution or emulsion and can be determined by bacteriological testing procedures.

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