



BUSAN® 90

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

ACTIVE INGREDIENTS:

2-Bromo-4'-hydroxyacetophenone

30.0%

INERT INGREDIENTS

70.0%

KEEP OUT OF REACH OF CHILDREN WARNING

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: Irritating to eyes and skin. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Wash thoroughly after handling. Avoid contamination of food.

FIRST AID: *In case of skin contact*, wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. *If product gets in the eyes*, flush immediately with copious amounts of clean, cool water for at least 15 minutes. Get medical attention immediately. *If swallowed*, call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

Note to physician: Probable mucosal damage may contraindicate gastric lavage.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish. Do not discharge into lakes, streams, ponds, or public waters unless in accordance with a NPDES permit. For guidance, contact your regional office of the Environmental Protection Agency.

Do not contaminate water by cleaning of equipment or by disposing of wastes.

PHYSICAL HAZARDS: Do not use or store near heat or open flame.

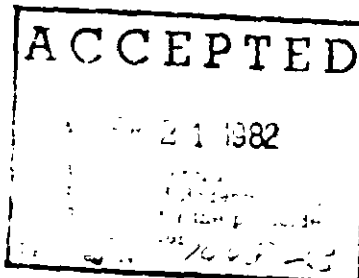
DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Busan 90 is used in pulp and paper mills (1) to control bacterial and fungal slime; (2) to inhibit the growth of bacteria that cause the degradation of papermaking chemicals such as animal glue solutions, clay slurries, starch solutions and slurries, and coating formulations; and (3) to inhibit the growth of fungi that cause the degradation of papermaker's alum solutions. Refer to the Product Data Bulletin entitled *Busan 90 - A Broad Spectrum Microbicide for Industrial Use* for detailed directions on these applications.

Busan 90 is composed of substances that have been allowed for use in the manufacture of paper and paperboard under U.S. Food and Drug Administration Regulations 176.170 and 176.300.

Busan 90 is used to inhibit the growth of bacteria that cause loss of viscosity in emulsion paints, adhesives, waxes, and polishes. Busan 90 is added at rates of 0.1-0.5% based on the weight of the emulsion.



STORAGE & DISPOSAL

PROHIBITIONS: Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

PESTICIDE DISPOSAL: Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to applicable Federal, state, or local procedures.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.

Manufactured by

Buckman Laboratories, Inc.

Memphis, Tenn. 38108, U.S.A.

EPA Reg. No. 1448-23

EPA Est. No. 1448-TN-1

Net Contents, Marked On Container

2-82



Product Data

Busan 90

A Broad-Spectrum Microbicide for Industrial Use

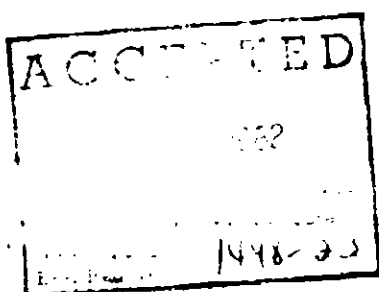
Busan 90 is a broad-spectrum microbicide which is highly effective against mold and fungi in pulp and paper manufacture and in related systems. It is employed for slime control and for the protection of coating formulations, starch slurries, and other systems. It is compatible with most pulpmill stocks and paper grades. When employed for slime control it is not retained by the paper or paperboard and contributes no odor or taste to the paper or paperboard products.

Busan 90 is composed of substances that have been allowed for use in the manufacture of paper and paperboard under U.S. Food and Drug Administration Regulations 176.170 and 176.300.

PRODUCT CHARACTERISTICS

Busan 90 is a liquid packed in 230 kg (500 lb) or 45.4 kg (100 lb) nonreturnable drums with bungs. Penton, Teflon, polyethylene, polypropylene, and Type 316 stainless steel are all satisfactory for storing and handling Busan 90. The product can be dispersed in water and is soluble in ethyl alcohol, isopropyl alcohol, and other organic solvents. The following are some of the physical properties of Busan 90 are as follows:

Active ingredient	2-Brom-4,4'-dichlorodiphenyl ether	50 percent
Inert ingredients		50 percent
Density at 25°C (77°F)	1.21 g/ml	
Approximate weight per U.S. gallon	10.1 lb	
Approximate volume per U.S. gallon	825 ml	
Approximate volume per pound	275 ml	
Flashpoint by Tagliani	149°C (310°F)	
pH of 100 parts per million in water	5-7	



Busan 90 is non-toxic to humans and animals. It is not a skin irritant. Workers handling the product should wear protective clothing and avoid contact with the eyes. Inhalation of dusts should be avoided.

METHODS OF APPLICATION

Busan 90 can be fed into systems directly from a hopper or meters by a pneumatic conveying system. It can also be added to a system by means of a pump or by means of a spray nozzle. It can also be added to a system by means of a spray nozzle.

Buckman Laboratories, Inc.

Slime Control in Pulp and Paper Mills

For slime control in pulp and paper mill systems, Busan 90 is employed at 0.1 to 1 kg per tonne (0.2 to 2 lb) per ton of pulp or paper (dry basis) for treatment periods of 2 to 6 hours out of each 8, each 12, or each 24 hours. The concentration of Busan 90 and the frequency of treatment should be adjusted higher or lower according to the rate of slime accretion. The most efficient results are generally obtained by feeding Busan 90 to the side of the fan pump or into white water or stock moving to the fan pump. This treatment may be supplemented, when necessary, by treatment of fresh water, slush pulp, broke, or other furnish components with Busan 90. Use of Busan 90 in the supplementary treatments is discussed in subsequent sections.

The use of effective microbicides is only a part of the requirements of a good slime control program. Good housekeeping is also essential to obtaining the most efficient control of microorganisms that cause slime. Before treatment with Busan 90 is started, the system should be cleaned thoroughly to remove old deposits of slime, pitch, scale, and other materials, and cleaning of the system should be repeated periodically in order to get the best results from use of the microbicide. The cleaning procedures used should include mechanical cleaning with high pressure hoses and other mechanical cleaning devices; and, if possible, circulation of a hot chemical cleaning solution to all parts of the system.

A suitable cleaning solution can be prepared by adding 7.5 kg of caustic soda (sodium hydroxide) and 1 litre of Busperse 47 or 2 litres of Busperse 46 to each cubic metre of water (60 lb of caustic soda and 1 gallon of Busperse 47 or 2 gallons of Busperse 46 to each 1000 gallons of water). Sodium metasilicate or sodium carbonate are suggested replacements for caustic soda in systems containing surfaces that may be adversely affected by strongly alkaline solutions. For best results prepare sufficient cleaning solution to fill the largest chest or tank in the system. Heat the solution to about 65°C (149°F) and move it stepwise through the entire system, allowing the solution to remain in contact with each part of the system for at least two hours. As it is moved through the system, the solution should be kept at a temperature above 50°C (122°F) by introduction of live steam, either through a permanent piping arrangement or through steam hoses. Prolonged contact of the hot cleaning solution with wires or fabrics should be avoided, and precautions should be taken to see that loosened deposits do not damage the wires or fabrics. When the circulation of the cleaning solution is completed, the wire should be washed thoroughly with fresh water, the cleaning solution should be discharged to the sewer, and the entire system should be flushed with fresh water.

Fresh Water Treatment

Busan 90 can be used to supplement or replace chlorine in the treatment of fresh water used on paper machines. Busan 90 will provide better control of slime-forming bacteria and fungi than chlorine, and its use in the fresh water will make slime control easier. In treating fresh water, Busan 90 is usually employed at concentrations of 1 to 4 parts per million for treatment periods of 3 hours out of each 8 hours; however, the frequency can be increased or decreased to provide optimum control of the microorganisms. Busan 90 should not be added to water used for drinking or bathing.

Preservation of Slush Pulp

Slush pulp that remains in storage systems may be kept in better condition with a microbicide to prevent spoilage and the loss of the product to bacteria and fungi. Slush pulp that may be held in storage for more than 30 days should be treated weekly. Slush pulp that may be held in storage for less than 30 days should be treated with 0.1 to 0.3 kg of Busan 90 per tonne (0.2 to 0.6 lb) per ton of the slush-free pulp. The Busan 90 should be added in a manner that will insure uniform distribution throughout the mass of pulp moving to storage.

Pulp and Recycled Fiber Treatment

As an alternative to chlorine, recycled pulp and recycled fiber waste papers should be treated with a microbicide as a supplementary treatment with Busan 90. The addition to each beater of 1 kg per ton (2 lb) of pulp or 2 kg per ton (4 lb) of fiber will keep the system free of slime.

Broke Treatment

Broke may require special treatment with Busan 90 to provide the best control of the slime-forming bacteria and fungi. A concentration of 1 kg of Busan 90 per ton (2 lb) of broke should be used for the first 2 to 4 days of treatment, and then the concentration should be reduced to 0.5 kg (1 lb) per ton of dry broke.

with a maximum of 0.3 kg of Busan 90 per tonne of substrate. For example, as much as 0.3 kg of Busan 90 per tonne of 60 lb of substrate.

Preservation of Coating Formulations and Papermaking Chemicals

Busan 90 can be used to inhibit the growth of bacteria and fungi that cause the biological degradation of coating formulations and papermaking chemicals. The required amount of Busan 90 should be added in such a manner as to ensure uniform distribution throughout the substrate to be protected. If necessary to facilitate its dispersion in the substrate, Busan 90 can be diluted with an equal volume or less of ethyl alcohol or isopropyl alcohol immediately prior to use. The following table shows the amount of Busan 90 recommended, based on the total wet weight of slurry, emulsion, or solution to be protected, for the preservation of various materials.

<i>Substrate</i>	<i>Parts per million of Busan 90</i>
Alum solutions	50 to 100
Animal glue solutions	75 to 150
Clay slurries, phosphate dispersed	50 to 100
Coating formulations, protein binders	150 to 200
Coating formulations, starch binders	100 to 200
Starch slurries and solutions	50 to 150

COORDINATED PROGRAMS

The maximum effectiveness of any microbicide, including Busan 90, will be obtained when the product is used as part of an overall Coordinated Program designed to control deposits and to increase operating efficiency in the pulp and paper mill systems. The representatives and distributors of Buckman Laboratories can assist in the development of a Coordinated Program utilizing the Buckman team of compatible and complementary products.

BUCKMAN U.S.A.