



ACCEPTED

OCT 4 1971

UNDER THE FEDERAL INSECTICIDE  
FUNGICIDE AND RODENTICIDE ACT  
FOR ECONOMIC POISON REGIS-  
TERED UNDER NO. 1448-23

# BUSAN® 90

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

Active ingredient:  
 2-Bromo-4'-hydroxyacetophenone ..... 30.0 percent  
 Inert ingredients ..... 70.0 percent

## APPLICATIONS

Busan 90 is used to control bacterial and fungal slime in pulp and paper mills. Busan 90 is employed at the rate of 0.5 to 5 p.p.m. of product during the period of treatment, based on the total weight of fiber and water at maximum dilution. The addition is usually made for a period of 2 to 4 hr. When conditions favor unusually rapid slime growth, the Busan 90 addition can be made once each 8 hr. or once each 12 hr. Under average conditions of slime growth, addition is made once each 24 hr. The addition should be made at a location where good mixing and agitation will ensure uniform distribution of Busan 90 in the mass of fiber and water. For additional uses of Busan 90 refer to the product data bulletin. Technical assistance on individual mill or plant problems is available upon request.

## WARNING

Hazardous if swallowed. If swallowed, call a physician immediately. Give patient doses of powdered charcoal immediately or all he can swallow of raw egg whites, milk, gruel, or flour and water. Then induce vomiting with salt, soap, or mustard in warm water. Workmen handling the product should wear rubber gloves and goggles and should avoid contact of the product with clothing or skin. After any exposure, wash promptly and thoroughly with an abrasive soap and cool water and finally with glycerin. In case of persistent irritation of the skin, obtain medical attention. If the product gets into the eyes, flood eyes immediately and thoroughly with cool water for 15 to 30 minutes. See a physician if any irritation persists. Keep the drum closed when not in use. KEEP OUT OF THE REACH OF CHILDREN.

This product is toxic to fish. Keep out of lakes, streams, or ponds. Do not contaminate water by cleaning of equipment, or disposal of wastes. Apply this product only as specified on this label.

**MANUFACTURED BY**  
**BUCKMAN LABORATORIES, INC.**  
**MEMPHIS, TENN. 38108, U.S.A.**

USDA Registration No. 1448-23

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# PRODUCT DATA

BUCKMAN 100-1

BUSAN 90

## A BROAD SPECTRUM MICROBICIDE FOR PULP AND PAPER MILLS

Busan 90 is a broad spectrum microbicide for controlling the growth of bacteria and fungi in pulp and paper manufacture. It is effective throughout the pH range generally employed in pulp and paper mill systems, and it is compatible with most pulp mill stocks and paper machine furnishes. When employed for slime control, Busan 90 is not retained by the paper or paperboard and thus contributes no odor or taste to the paper or paperboard products.

Busan 90 is composed of materials that have been allowed for use in the manufacture of paper and paperboard under U.S. Food and Drug Administration Regulation 121.2505.

### PRODUCT CHARACTERISTICS

Busan 90 is a liquid packed in 240 kg. (530 lb.) net weight, lined, nonreturnable steel drums with bungs. Penton, Teflon, polyethylene, polypropylene, molded nylon, 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 composition and some of the physical properties of Busan 90 are as follows:

#### Active ingredient:

- 2-Bromo-4-hydroxyacetophenone ..... 30 percent
- Inert ingredients ..... 70 percent
- Density at 25° C. (77° F.) ..... 1.18 g. per ml.
- Approximate weight per U.S. gallon ..... 9.8 lb.
- Approximate volume per kilogram ..... 850 ml.
- Approximate volume per pound ..... 885 ml.
- Flashpoint by Taghlabue open cup method ..... 63° C. (145° F.)
- pH of 100 parts per million in distilled water ..... 5-6

Busan 90 is moderately toxic by ingestion in animal tests and is irritating to skin and eyes. Workmen handling the product should wear rubber gloves and goggles and should observe other precautions shown on the label.

### METHODS OF APPLICATION

Busan 90 can be fed into the system directly from shipping containers by use of chemical feeding pumps. It can also be dispersed through bleaching containers or by means of drip feed devices. Busan 90 should be added to the system at points of vigorous agitation. The points of addition should be such that Busan 90 is adequately distributed to all parts of the system where trouble may develop.

## BUCKMAN LABORATORIES, INC.

BUCKMAN LABORATORIES INTERNATIONAL, INC.

MANUFACTURING CHEMISTS

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### Slime Control

For slime control in pulp and paper mill systems, Busan 90 is used at concentrations of 0.5 to 5 parts per million, based on the total flow of fiber and water at maximum dilution, for treatment periods of 2 to 6 hours. The treatment with Busan 90 is repeated once each 8, each 12, or each 24 hours. The concentration of Busan 90 and the frequency of treatment are adjusted according to the rate of slime accretion.

### Fresh Water Treatment

Busan 90 can be used to supplement or replace chlorine in the treatment of process fresh water. Busan 90 will provide better control of slime forming microorganisms 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 microorganisms. Busan 90 should not be added to water used for drinking or bathing.

### Preservation of Slush Pulp

Pulp stored at either high or low consistency may require treatment with a microbicide to prevent it from spoiling as the result of the growth of microorganisms. Slush pulp that may be held in storage for more than 8 hours but not more than 1 week should be treated with 0.1 to 0.3 kg. of Busan 90 per metric ton (0.2 to 0.6 lb. per short ton) of moisture free pulp. The Busan 90 should be added in a manner that will ensure uniform distribution throughout the mass of pulp moving to storage.

### Secondary Fiber Treatment

When microbiologically contaminated pulp or secondary fiber (waste paper) is introduced into the system, it should receive a supplementary treatment with Busan 90. The addition of 0.1 to 0.3 kg. of Busan 90 per metric ton (0.2 lb. per short ton) of moisture free fiber will aid in keeping the system free of slime.

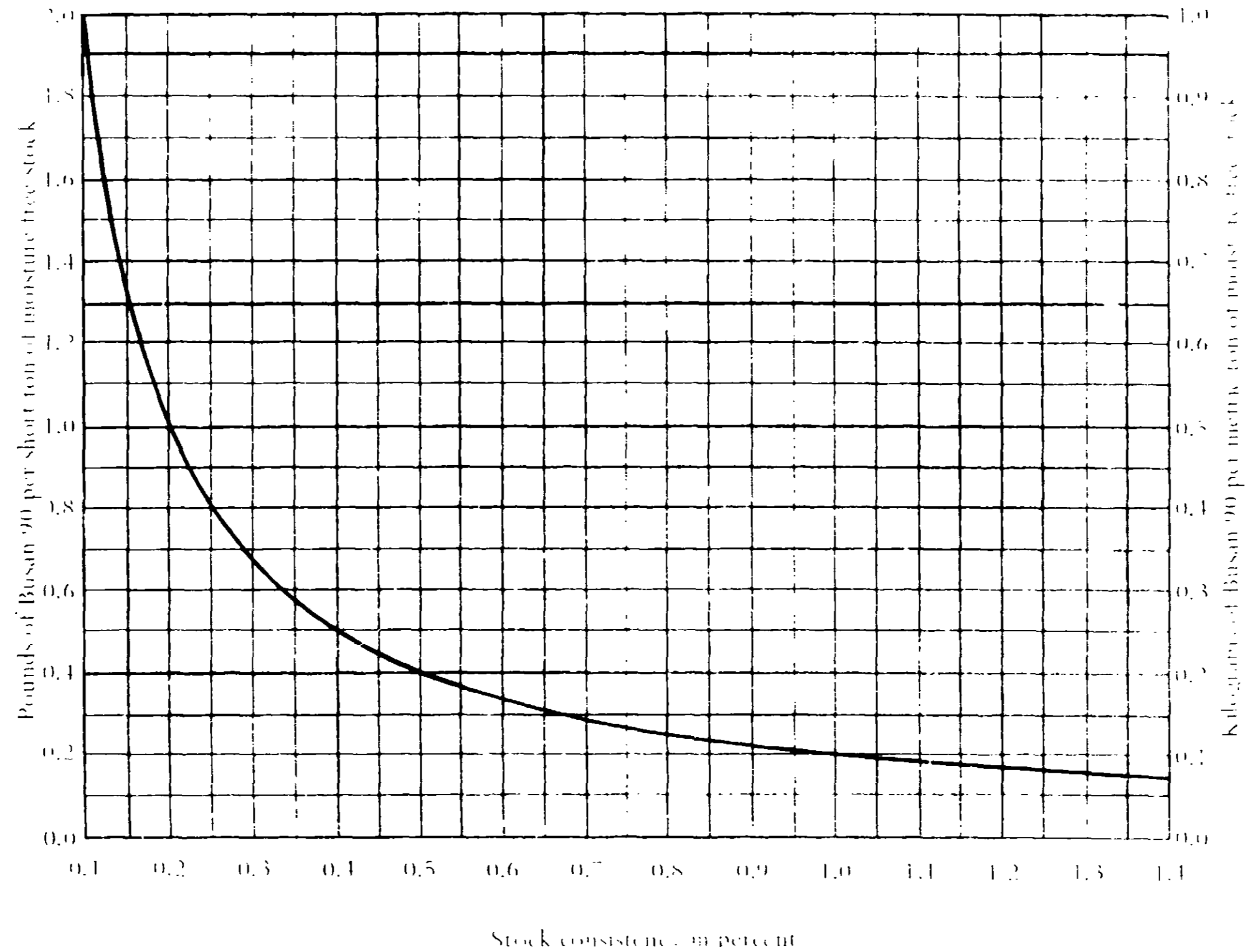
### Broke Treatment

Broke may also require supplementary treatment with Busan 90 to provide the best slime control. For uncoated broke, the addition of 0.1 to 0.2 kg. of Busan 90 per metric ton (0.2 to 0.4 lb. per short ton) will usually be adequate, but coated broke may require as much as 0.3 kg. of Busan 90 per metric ton (0.6 lb. per short ton).

### Preservation of Papermaking Chemicals

Busan 90 can also be used to inhibit the growth of bacteria and fungi that cause the microbiological degradation of 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, Busan 90 can be diluted with an equal volume or less of ethyl alcohol or isopropyl alcohol immediately prior to use to facilitate its dispersion in the substrate. The following table shows the amount of Busan 90 recommended for the preservation of various materials, based on the total wet weight of slurry, emulsion, or solution to be protected.

Amount of Busan 90 Required per Ton of Moisture Free Stock to Provide One Part per Million in the System at Various Stock Consistencies



**EXAMPLE:** Based on a maximum dilution to a consistency of 0.5 percent, 0.2 kg. of Busan 90 (0.4 metric ton, 0.4 lb. per short ton) of dry paper is required to provide 1 part per million. Thus, if it is desired to feed 3 parts per million of Busan 90 into such a system producing 5 metric tons per hour for a 3 hour period, it would require 3 kg. (2550 ml.) of Busan 90 per hour and 9 kg. (6850 ml.) of Busan 90 during the 3 hour feeding period. This is equivalent to about 11 ml. of Busan 90 per minute for the 3 hour feeding period. Similarly, if the production rate was 5 short tons per hour, it would require 6 lb. (2310 ml.) of Busan 90 per hour and 18 lb. (6930 ml.) of Busan 90 during the 3 hour feeding period. This is equivalent to 38.5 ml. of Busan 90 per minute for the 3 hour feeding period.

Substrate	Parts per million of Busin 90
Alum solutions	100 to 400
Animal glue solutions	50 to 100
Clay slurries, phosphate dispersed	50 to 100
Coating formulations, protein binders	150 to 500
Coating formulations, starch binders	100 to 200
Starch slurries and solutions	50 to 150

#### COORDINATED PROGRAMS

The maximum effectiveness of any microbicide, including Busin 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, Inc., can assist in the development of a Coordinated Program utilizing the Buckman line of compatible and complementary products.

*Recommendations are made for the use of Busin 90 in conjunction with other products beyond the control of Buckman Laboratories, Inc., in a Coordinated Program designed to control deposits and to increase operating efficiency in the pulp and paper mill systems. The results to be obtained from the use of these products are the responsibility of the user and are not the responsibility of Buckman Laboratories, Inc. The user assumes all responsibility, including liability, for the results obtained from the use of these products in conjunction with other materials. This bulletin is not intended to constitute a contract or any other legal agreement.*