



1448-55

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Product Data

December 30, 1980

Busan® 30

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

Broad-Spectrum Microbicide

Bulletin No. C42
ACCEPTED
 AUG 26 1982
 Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 1448-55

Busan 30 is a liquid microbicide concentrate for the control of microorganisms in industrial and commercial cooling water and process water systems. Because of its unique biocidal and physical characteristics, it is also useful for controlling microbiological growth in specific applications including: cooling tower wood; cutting fluids, coolants, and other water-thinned hydrocarbon fluids; drilling fluids; and process injection or produced waters in petroleum secondary recovery processes.

Busan 30 does not cause foaming and thus can be added to systems in slug dosages at maximum use concentrations. Busan 30 is oil soluble to some degree which provides the capability of microbiological control in hydrophobic environments.

PRODUCT CHARACTERISTICS

Busan 30 is a liquid that emulsifies readily in water. It is packed in nonreturnable drums with bungs. Type 316 stainless steel, molded nylon, Penton, Teflon, polyethylene, and polypropylene are all satisfactory for handling Busan 30. The composition and some of the physical properties of Busan 30 are as follows:

Active ingredient:

2-(Thiocyanomethylthio)benzothiazole	30%
Inert ingredients	70%
Density at 25 °C (77 °F)	1.05 g/mL
Approximate weight per U.S. gallon	8.7 lb
Approximate volume per kilogram	950 mL
Approximate volume per pound	430 mL
Flashpoint by Tagliabue closed-cup method	50 °C (122 °F)
pH of 100 ppm in distilled water	6-7

Busan 30 is moderately toxic by ingestion in single doses and by single skin applications. The undiluted product is irritating to the skin and to the eyes. Workmen handling the product should use rubber gloves and goggles and should observe other precautions shown on the label.

METHODS OF APPLICATION

Busan 30 can be used in its concentrated form, or it can be emulsified in water or diluted with certain organic solvents. The concentrate or the dilutions can be added to cooling water systems as slug doses or can be fed into the circulating water at points of good agitation by means of chemical-metering pumps. In the following discussion, all references to the amounts employed are based on concentrated Busan 30 containing 30% of the active ingredients.

Buckman Laboratories, Inc.

BUCKMAN LABORATORIES INTERNATIONAL, INC.

MEMPHIS, TENNESSEE 38108, U.S.A.

BUCKMAN LABORATORIES PTY LTD
SYDNEY, N S W, AUSTRALIA

BUCKMAN LABORATORIES, S.A
GHENT, BELGIUM

BUCKMAN LABORATORIOS, LTDA.
CAMPINAS, S.P., BRAZIL

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BUCKMAN LABORATORIES (PTY) LTD
HAMMARSDALE, NATAL, SOUTH AFRICA

Algae Control in Cooling Water Systems

As a general rule, it is recommended that, prior to treatment of cooling water systems with Busan 30, the system be thoroughly cleaned to remove old algal growth, slimes, and other deposits. The system then should be drained, flushed, and refilled with fresh water and then treated regularly with Busan 30.

For the control of microorganisms on cooling towers and other parts of commercial and industrial recirculating cooling water systems, Busan 30 is used at concentrations of 1.6 to 10.0 ppm (weight/weight) or 0.2 to 1.2 fluid ounces of Busan 30 per 1000 gallons of water in the system. It is recommended that initially a slug dose of 5.0 to 30.0 ppm or 0.6 to 3.7 fl oz of Busan 30 per 1000 gallons of water should be made, and this initial dosage should be repeated until control is evident. Subsequent additions of 1.6 to 10.0 ppm (0.2 to 1.2 fl oz of Busan 30 per 1000 gallons of water) should be made every 1 to 5 days or as needed. The required frequency of treatment depends on the relative amount of bleedoff and the severity of the microbiological fouling problem. Slug additions of Busan 30 should be made to the sump of water cooling towers.

Microbiological Treatment of Wooden Cooling Towers

Cooling tower wood is subject to two types of deterioration: (1) that which is chemical in nature and (2) that caused by the action of microorganisms. Those microorganisms most generally involved are fungi capable of degrading cellulose. The selective utilization of cellulose leaves wood composed primarily of lignin which has no mechanical strength. Many cooling water biocides are not effective fungicides. Even when combination algaeicide, bactericide, fungicide products are used, there is not sufficient contact with the entire surface of cooling tower wood to provide the necessary protection against fungal attack. Because of its superior, broad-spectrum activity against cellulytic fungi, Busan 30 is the product of choice for maintenance treatment of cooling tower wood.

A 0.5 to 0.7% by weight dilution of Busan 30 in water is recommended for this application. The diluted Busan 30 should be applied in a manner that ensures that it is distributed over all exposed areas. This is best accomplished by removal of the tower fill and soaking it overnight in the diluted Busan 30. Where this is not practical, it is recommended that Busan 30 be applied by spray application at a time when the cooling tower can be taken off line. The amount applied should provide 0.6 to 0.8 lb Busan 30 per 1000 ft² of wood surface. It should be cautioned that persons spraying Busan 30 should be clothed in such a manner that the product will not contact face, eyes, or skin. Face shields, goggles, rubber suit, rubber gloves, and rubber safety shoes are recommended wearing apparel.

Soft or surface rot can also be inhibited by periodic shock doses of Busan 30 to the recirculating cooling water at the tower basin or cold well. The dosage should provide 1.25 lb of Busan 30 per 1000 gal of water and the bleedoff should be stopped for 4 to 6 hr after treatment. The shock treatment should be repeated every four months.

Cutting Fluids, Coolants, and Other Water-Thinned Materials

Busan 30 is used to inhibit bacterial and fungal degradation of water-based and water-soluble or emulsifiable materials such as cutting oils and coolants used in metalworking operations. It should be added to the base oil or concentrated coolant at a rate that will provide 2.5 to 250 ppm Busan 30 (weight/weight) after final dilution with water. Busan 30 can be added after the dilution or can be added to the concentrate before dilution at a rate of 125 to 1250 ppm based on the weight of the concentrate in order to provide the desired concentration in the diluted fluid.

Busan 30 is compatible with most water-thinned materials. However, in keeping with sound procedures it is recommended that stability tests be made of the combination of Busan 30 and the concentrate prior to the use of the product under operating conditions.

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Drilling Fluids

Busan 30 is used to stabilize several types of drilling fluids that are subject to microbiological degradation. To inhibit bacterial and fungal degradation of fluids or muds used in drilling of wells, Busan 30 is incorporated in the drilling fluid at concentrations of 0.05 to 0.25% based on the total wet weight of the fluid. Addition should be made in a manner that insures adequate dispersion of the Busan 30 throughout the fluid.

Busan 30 is compatible with most drilling fluid compositions. However, in keeping with sound procedures it is recommended that stability tests be made of the combination of Busan 30 and the drilling fluid materials prior to use of the product under operating conditions.

Petroleum Secondary Recovery

Busan 30 is used to control sulfate-reducing bacteria, slime-forming bacteria and fungi, and other problem-causing microorganisms in floods, water-disposed systems, and other oil-field water systems. Busan 30 is added at a rate of 0.2 to 3.7 fl oz per 1000 gallons of water treated (1.6 to 30.0 ppm weight/weight). Additions should be made continuously or intermittently by means of a metering pump at the free water knockouts, before or after injection pumps and injection well headers.

Continuous Feed Method: When system is noticeably fouled, add Busan 30 at a rate of 0.6 to 3.7 fl oz per 1000 gallons of water continuously until desired degree of control is achieved. Then treat with 0.2 to 1.2 fl oz of Busan 30 per 1000 gallons of water continuously, or as needed to maintain control.

Intermittent or Slug Method: When the system is noticeably fouled, or to maintain control, add 0.6 to 3.7 fl oz of Busan 30 per 1000 gallons of water for 4 to 8 hours per 24 hours and 1 to 4 times per week, or as needed to maintain control.

Recommendations given in this bulletin are based on tests believed to be reliable. However, the use of the product is beyond the control of Buckman Laboratories, Inc., and no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice. The buyer must assume all responsibility, including injury or damage, resulting from misuse of the product as such, or in combination with other materials. This bulletin is not to be taken as a license to operate under or recommendation to infringe any patent.

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