



**BUSAN 83**

MANUFACTURED BY  
**BUCKMAN LABORATORIES, INC.**  
MEMPHIS, TENN. 38101 U.S.A.



**PRODUCT DATA**

*1993-26*

Buckman Laboratories Inc.

### **Sulfate-Reducing Bacteria**

*Produced Salt Water.* Busan 83 is used at 2.0 to 4.0 U.S. fl. oz. per 1,000 U.S. gal. of water treated (20 to 40 parts per million (p.p.m. by weight) for the control of sulfate-reducing bacteria (*Desulfotribio*) in produced water containing from 10,000 to 150,000 p.p.m. of total solids. Continuous application by means of a chemical metering pump is necessary for best performance. Treatment is introduced at the heater treater dump, into gathering lines, or into the receiving tanks. Treatment always should be made upstream from the filter.

Oil that may be present in produced water has no deleterious effect on the action of Busan 83 since the components of this product remain exclusively in the water phase. They do not migrate into the oil and thereby lose effectiveness. Busan 83 is not quickly removed from the water by adsorption or reaction with hydrogen sulfide. It thus provides control of bacteria in a long line without corrosion of the line or removal from the system by reaction, as is the case with chlorine.

*Commingled Water.* Busan 83 is used at 2.0 to 4.0 U.S. fl. oz. per 1,000 U.S. gal. of water (20 to 40 p.p.m.) for the control of sulfate-reducing bacteria in commingled water of various types. The best treatment site for commingled water is as far upstream as possible. For example, with a waterflood using produced water mixed with fresh water for makeup, the treatment is usually introduced at the heater treater dump on the salt water line and down the annulus of the fresh water well. This type of treatment is particularly important if there is a long line to the filter plant since appreciable bacterial growth can occur in the line carrying untreated water.

*Sea Water.* Busan 83 is used at 2.0 to 4.0 U.S. fl. oz. per 1,000 U.S. gal. of water (20 to 40 p.p.m.) for the control of sulfate-reducing bacteria in sea water much as in any other source of salt water. The recommended treatment site is usually at the first holding tank. Water obtained from wells adjacent to a source of sea water should receive treatment down the annulus of the well to protect the well equipment and transfer lines.

*Water Retained in Open Ponds.* The use of Busan 83 in gathering or skimming ponds serves to keep the population of sulfate-reducing bacteria at a minimum while the water is held in ponds, resulting in a better quality of water going to the processing plant. Adequate treatment of holding ponds with Busan 83 decreases the amount of hydrogen sulfide in the pond effluent. This is usually accomplished by adding Busan 83 at a gathering line going to the first pond to provide 1.5 to 2.0 U.S. fl. oz. of Busan 83 per 1,000 U.S. gal. of water (15 to 20 p.p.m.) based on the total flow into the pond. An additional 1.5 to 2.0 U.S. fl. oz. of Busan 83 per 1,000 U.S. gal. of water (15 to 20 p.p.m.) should be fed ahead of the filters. In many cases, 2.0 to 4.0 U.S. fl. oz. of Busan 83 per 1,000 gal. of water (20 to 40 p.p.m.) applied ahead of the first pond can provide protection throughout the system.

*Treatment of Disposal Wells.* Busan 83 is used at 1.5 to 2.0 U.S. fl. oz. per 1,000 U.S. gal. of water (15 to 20 p.p.m.) in treating produced waters going to disposal wells, to minimize the sulfide formation by sulfate-reducing bacteria and subsequent plugging of the disposal well. This treatment in the field should be introduced at the gathering or skimming pond before the pumps inject water into the well.

### **Scale Control**

Addition of Busan 83 to flood waters used in secondary recovery of petroleum provides scale control as well as bacterial control. Busan 83 can control scaling caused by the sulfates and carbonates of calcium, magnesium, and barium as well as that caused by iron oxide. The most severe scaling generally occurs in the pump located at the foot of each producing well. To control scale formation in this pump, Busan 83 is forced down the annulus of the producing well.

Busan 83 provides the advantage of one product for the control of both scale and sulfate-reducing bacteria. Usually, the same feed rates recommended for controlling bacteria will be sufficient to provide the needed degree of scale control. Under severe scaling conditions, however, concentrations of 30 to 50 p.p.m. may be necessary.

*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.*

Printed in U.S.A.