

VALVTECT®

BioGuard WS™

Fuel Microbiocide



BENEFITS:

BioGuard WS™ is an EPA registered water soluble microbiocide which effectively kills bacteria and fungi that grow in diesel fuel, heating oil, residual oil and lubricating oil which causes filter plugging and corrosion of metal surfaces.

BioGuard WS™ typically works in as little as 2-3 hours versus 24 to 36 hours needed by other fuel biocide products.

APPLICATIONS:

BioGuard WS™ is effective in controlling the growth of microorganisms that breed in the fuel and water which produce slime, sludge and acid. Typical applications include, marine, farm, truck fleet, home heat, generators, and railroad storage tanks. Product is EPA registered for treatment of fuel in both on-road and off-road diesel bulk storage tanks or directly to the equipment fuel tanks for off-road diesel. This product is not EPA registered for additive use to on-board fuel tanks on over the road equipment.

<u>Container Size</u>	<u>Initial Treatment</u>	<u>Maintenance Treatment</u>
16 oz.	16 oz. to 480 gal.	16 oz. to 960 gal.
5 gal.	1 gal. to 3,750 gal.	1 gal. to 7,500 gal.
55 gal.	1 gal. to 3,750 gal.	1 gal. to 7,500 gal.

TREATMENT PROCEDURES:

INITIAL TREATMENT: To kill existing microorganisms and for best results, remove water bottoms from fuel storage tanks. Add the proper amount of BioGuard WS™ (1 oz. to 30 gals or 1 gal. to 3,750 gal.) directly to the tank which is at least 1/2 full of fuel. Completely fill tank with fuel. Allow three hours or more before using. Check filters frequently for residue and change as necessary.

MAINTENANCE TREATMENT: Continue to treat subsequent fuel loads with BioGuard WS™ at the maintenance dose (1 oz. to 60 gals or 1 gal. to 7,500 gal.). Continue to check filters and keep fuel free of water.

To prevent microorganism growth continuously treat all fuel deliveries with BioGuard WS™ at the maintenance treatment dosage and keep fuel systems free of water.

WARRANTY:

We guarantee this product to comply with our published specifications. Since the use of this product is beyond our control, we disclaim responsibility for its performance, handling, use, storage, the results obtained, or any injury of any nature resulting therefrom. Product warranty and sellers obligations apply only to replacement of product. Seller assumes no liability for any claim or loss of any other kind. In no event shall seller be liable for indirect punitive, special or consequential damages or expenses. Any warranty claim shall be governed by and construed in accordance with the laws and jurisdiction of the State of Illinois.

STORAGE AND HANDLING:

It is a violation of EPA regulations to repackage BioGuard WS™ in any container other than its original package. Follow recommendations on the label carefully. Do not store at temperatures below 32 degrees.

BioGuard WS™ is a U.S. EPA registered biocide and should be used with caution. Read all warnings, precautionary statements and storage and disposal instructions on container and refer to the Material Safety Data Sheet (MSDS) before using BioGuard WS™.

FOR MORE INFORMATION CALL

VALVTECT®
1-800-728-8258

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Laboratory Comparative Testing

BIOGUARD WS vs. BIOBOR JF

The following excerpts were taken from a report from the laboratory of Applied Environmental and Industrial Microbiology at the University of Montana, Missoula, MT.

Summary: A modified ASTM method was used to compare the effectiveness of ValvTect BioGuard WS with Biobor JF in the "kill rate" and percent of kill of three common forms of microbiological growth in No.2 distillate fuel. In all systems, the BioGuard WS product was superior to Biobor JF in the rate of kill and percent of kill.

Method: The general experimental set-up, test organisms and inoculum preparation, medium compositions, and incubations are described in ASTM Standard E 1259 – 88. The major modification to the method was in the sampling frequency. Instead of two week sampling periods, sampling times were 0, 3, 6, 24, 168, and 336 hours. Single biocide dosages were 0.5oz/20 gal (Biobor) and 1.0 oz/30 gal diesel (BioGuard WS).

Discussion: Visual observations revealed that the organisms form defined film at the oil-water interface but not the oil phase. BioGuard WS was more effective in both rate and percent of kill in all tests which was not surprising since BioGuard WS localizes in the water phase. BioGuard WS active material also has a long history as a very effective fungicide. Since the Biobor JF product is predominantly in the oil phase, it has limited access to the majority of the bacterial cells.

General Conclusion - BioGuard WS was more effective in both rate and percent of kill in all tests. The superior performance of BioGuard WS, in part, reflects its great solubility in the aqueous phase. Observations throughout the test clearly indicate that the microorganisms localize at the oil-water interface with additional growth in the water but not the oil phase.

