January, 2000

BIOFORCE BIOAUGMENTATION SPECIFICATION

A. General

The successful supplier will provide a total of ____ water soluable bags of BioForce Bioaugmentation, as supplied by Aeromix of Minneapolis, Minnesota. The bacteria bioaugmentation shall be harvested with their enzyme saturated growth media and dried. When dissolved, the bacteria will quickly emerge from their spore capsules and begin feeding on the organic sludge on the pond bottom. These bacteria shall be classified as facultative anaerobic heterotrophs and work in both the presence and absence of oxygen and require organic carbon. The introduction of billions of these bacteria into a pond or lake will enhance or augment, the existing microbial populations for improved efficiency in degrading wastes. The bacteria and enzymes accelerate biodegradation of bottom sludge in ponds, eliminate foul odors associated with stagnant water, and controls algae that cause "green water" and top scum in ponds. Water quality is clarified and improved by removing suspended solids. Hydrocarbons, phenols, and other targeted toxic organic compounds are also biodegraded.

B. Bacteria Specifications

The bacteria shall be 100% non-toxic, non-pathogenic organisms and contain no salmonella or E. Coli Bacteria. The bacteria shall be a specifically formulated blend of heterotrophic bacteria and enzymes to handle high nutrient loads for efficient pond management and ease of maintenance. Included are selected strains of naturally occurring, environmentally friendly, bacteria that produce large quantities of hydrolytic enzymes capable of liquefying digesting simple and complex proteins, fats, oils, cellulose, and starch. Minimum aerobic bacteria count shall be 1.4 billion/gram. Minimum anaerobic bacteria count shall be 500 million/gram.

C. Environmental Specifications

A minimum dissolved oxygen (DO) concentration of 2.0 ppm (mg/l) is required for effective aerobic activity. Effective pH range is 5.5 to 8.5 with optimal pH at 7.5. Effective temperature range is 55-100°F (12.7 - 43.3°C), optimal temperature range is 75-90°F (23.9-32.2°C), maximum growth is at 80-85°F (26.7-29.4°C), no growth will occur below 40°F (4.4°C). Growth rate is reduced 50% for each 18° F (10° C) decrease in temperature. Fastest results are obtained in aerated ponds. Copper levels must be below 0.05 ppm. Double recommended dosage for salinities over 8 parts per thousand.

D. Safety

No permits or applicator’s licenses are required. When following manufacturer’s recommended directions, the bacteria pose no health hazards to humans, fish, pets, turf, plants, waterfowl, or any other type of wildlife. No registration with the EPA shall be required because it is not an algaecide and is not regulated under the Federal Insecticides, Fungicides and Rodenticides Act (FIFRA).

E. Storage

Store in a cool, dry area. High humidity or moisture may cause premature activation and reduced viability of product. Freezing has no detrimental effects on this product.

F. Miscellaneous

These bacteria are not harmful, and are actually beneficial, to the turf when applied through irrigation. They will survive for several hours before drying and feed on the decaying organic material present in the root zone layer. Gradually, the capillary and non-capillary pore spaces in the root zone layer will be cleared and percolation rate will increase.