

GBI'S WASTEWATER PATENT ISSUED

U.S. PATENT NO. 6,669,846

Wastewater Treatment with Alkanes

DECEMBER 30, 2003

GBI's wastewater patent, *Wastewater Treatment with Alkanes*, issued on December 30, 2003. Aerobic digestion is an alternative method of treating the organic sludges produced from various treatment processes. Alkanes with high solubility, such as butane, rapidly dissolve in wastewater thereby significantly increasing the heterogeneous microbial community and heterotrophic microbial populations. Alkane bioavailability results in the selection of robust and diverse microbial populations. These enhanced microbial populations rapidly absorb and mineralize the dissolved organic nutrients in the wastestream. After this initial growth phase, the organic matter available in the wastewater effluent rapidly decreases thereby reducing the BOD, TDS and sludge components. In addition, odor is often a result of bacterial decomposition of organic matter, which often produces unpleasant smelling gases as interim by-products at wastewater treatment facilities. Alkane Biostimulation abates odors associated with organic decomposition.

GBI's state-of-the-art delivery system for alkanes is safe, highly reliable, and requires little maintenance. The system shown below is designed to inject any gaseous alkane at a pre-determined volume into the flow stream of an air injection system. The injection system pulses an alkane, such as butane, into the existing outlet piping of a gas motor air compressor located at an operating facility. The alkane/air mix flows through the existing facility piping network and diffusers. No additional piping or diffusers are necessary. No other facility retrofits are required for alkane treatment of wastewater.



Example of Alkane (Butane) Injection at a small wastewater treatment facility