

Vacuum Bubble[®] Technology (VBT[™]) Aeration in an Industrial Waste Lagoon - A Case Study

Introduction

Vacuum Bubble[®] Technology (VBT[™]) creates micro bubbles of air that are neutrally buoyant. The bubbles are created under a partial vacuum and, as a result, the internal pressure of the bubbles is lower than that of the surrounding water. Consequently, the bubbles collapse to an average dimension of 0.25 mm in diameter. Because of their small size and neutral buoyancy, the bubbles remain in the water for many minutes. These micro bubbles increase the oxygen transfer potential in the water which, in turn, enables aerobic bacteria to consume the organic waste in the water.

The Problem

The Dial Corporation installation in Fort Madison, Iowa had a one million gallon industrial waste lagoon filled to capacity with 100% sludge. The high strength waste consisted of the byproducts of canned meat production, i.e. grease, fat, and vegetable matter. The installation of four Vacuum Bubble[®] Technology Model 600 units showed immediate results.



This photo was taken immediately after the Vacuum Bubble[®] Technology Aerator installation into the one million gallon lagoon.

Results



This photo shows the results of 60 days aeration with the Vacuum Bubble[®] Technology Aerator.

Primary Lagoon		Pre Treatment Conditions	Post Treatment Conditions
1,000,000 gallons	Odor	Extreme	None
10 ft Lagoon depth	BOD	8,880 ppm	1,830 ppm