

Smart Storage for Landfills

Smart Storage is a method for managing landfill waste that provides a long-term, cost effective, and environmentally sustainable solution based on bioreactor technology.

Smart Storage is the active control of the waste containment environment for accelerated degradation and stabilization of landfill waste.

Smart Storage managed landfills function by optimizing conditions for anaerobic or aerobic microorganisms to degrade landfill waste. Optimum conditions are achieved primarily through control of moisture content, air injection, or both, depending on the type of landfill and available infrastructure.

Smart Storage requires minimal sensors, optimizes existing landfill configurations, and can dynamically respond to changing conditions through Real-Time Control (RTC). RTC can be used by operators to predict and design optimal treatment processes and is based on landfill bioreactor simulation models developed at Lawrence Berkeley National Laboratory.

The end result is waste decomposition in years rather than decades, lower operational costs, and reduced environmental impact. The stabilized waste is non-toxic and may be mined for metals, glass, and soil.

Dangerous Friends and Friendly Enemies

Microbes are everywhere humans are. We can never completely escape their presence. From the minute we are born, they are our constant companions, surrounding us and living inside our bodies. Although many microbes can cause disease, most are harmless or actually beneficial to us.

However, disease is a constant threat to our health and life. Everyone has been affected by disease sometime in his or her life. Infectious bacteria, viruses, fungi, and protozoa have existed longer than the human species.

Usually diseases are contained to small groups or areas. However, periodically a disease will spread out of control and rapidly infect a population. Epidemics are a frightening but natural occurrence. Some epidemics, such as the Bubonic Plague, can wipe out millions and spread around the world, becoming pandemics. With today's global travel, pandemics are more frightening because they can spread around the world more rapidly.