



HeineBio

BIODEGRADATION SUMMARY

Introducing selected, naturally-occurring, non-pathogenic, bacteria (which produce enzymes) to organic waste is a safe, environmentally responsible method of augmenting and accelerating nature's own biodegradation process.

In the natural environment, both bacteria and the enzymes play a significant part in biodegradation -- Bacteria produce the enzymes essential for metabolizing the food source (organic waste) into energy necessary for further growth of the living organism. The enzymes facilitate the phase of metabolism in which complex compounds are broken into simpler ones (catabolism). This in turn speeds the process of converting the food source into an available energy supply for the bacteria.

A reasonable period of time after introducing HeineBio's specially selected bacteria into water medium containing organic waste, the spores will vegetate (go from dormant to active), produce specific enzymes, and degrade or digest the available organic waste. The introduced microorganisms are capable of exponential growth – they can double in number every twenty to thirty minutes. The by-products of this bacteria / enzyme activity are H₂O and CO₂.

By adding HeineBio's strains of *Bacillus* bacteria to organic waste, the following beneficial results can be achieved :

- reduction of BOD (Biological Oxygen Demand)
- reduction of COD (Chemical Oxygen Demand)
- reduction of SS (Suspended Solids)

Foul odours and noxious gases are reduced, by eliminating their source (organic waste)

HeineBio's bacterial concentrates are not genetically engineered or altered; they are naturally-occurring – found in soil and water. They were carefully selected because they are :

- safe and stable
- non-pathogenic
- non-toxic
- facultative (capable of growth with or without oxygen)
- vigorous enzymes producers
- logarithmic reproduction, every 30 minutes.