LIXI-2 Bioprocess

Co-biotreatment of Landfill Leachates and Organic Wastes

Problem description

Biological treatment of landfill leachate is difficult due to typically high mineral and NH3-NH_4^+ concentration, high pH and a recalcitrant organic fraction.

MADEP solution

MADEP has isolated bacteria and developed the strains specifically for the reduction of COD, TOC and total inorganic nitrogen concentrations in landfill leachates. MADEP has also developed a treatment technique that makes use of organic wastes to improve COD, TOC and total inorganic nitrogen removal and sludge sedimentation properties by continuous co-treatment of landfill leachate. The bioprocess requires a simple reaction vessel, co-substrate slurry feeder and an aeration system. The bioprocess can usually be adapted to the client's existing reaction vessel or flow equalization basins without significant equipment costs.

Advantages

- Low cost biological treatment process
- NH3-NH_4^+ removal rate: 200 mg/(liter * day)
- Excellent sludge sedimentation properties
- Short (3 days) hydraulic retention time
- Additional revenue source (tipping fees) derived from co-treatment of organic wastes