

AN INNOVATIVE WAY TO ELIMINATE SCALING PROBLEMS IN LEACHATE TREATMENT

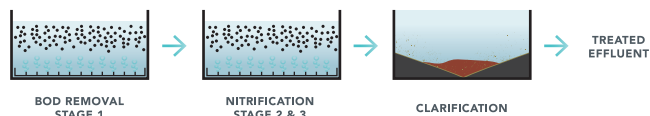
CASE STUDY

SMBR™ - SUSPENDED MEDIA BIOREACTOR

SMBR™ is a wastewater biological treatment technology particularly well suited to treat high or variable loads, such as food processing plants effluent and landfill sites leachate. The floating plastic media (PEENOX™) supports the growth of biomass providing many advantages:

- Increased treatment capacity
- Higher resistance to shock loads
- Faster recovery
- Better degradation of complex organics
- Excellent nitrification
- Lower sludge production

The PEENOX™ media consists of honeycomb like cylinders offering a large surface for the bacteria to grow. The specific gravity of 0.95 enables the biofilm covered media to form a fluidized bed in the SMBR™. The average thickness of the biomass is less than 1 mm, which allows water to circulate freely through the channels.



SCALING ISSUE

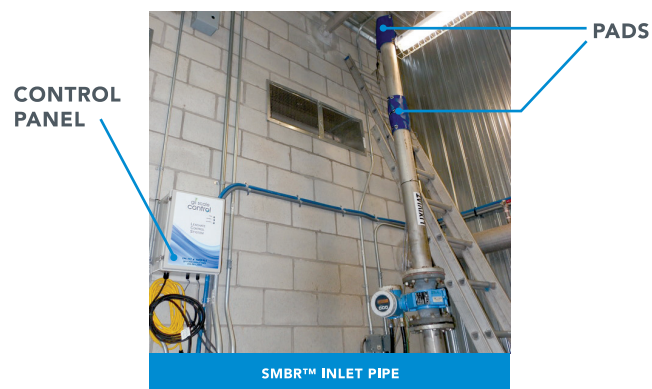
Over the past several years, landfill leachate in North America has shown a significant increase in calcium content. This calcium reacts with carbonates in the leachate to generate a hard mineral scale on all available surfaces. The scaling phenomenon is mainly dependent on pH, temperature, water hardness, and is enhanced by the aeration in the SMBR™ process. The scale deposit on the media will change its density and impair its movement in the SMBR™.



LEACHATE SCALE CONTROL SYSTEMS

A New Technology: The electronic leachate scale control (ELSC) system initiates the formation of microscopic seed crystals that remove and prevent the formation of hard scale on piping and process equipment.

In October 2017, two ELSC units were installed on a full size SMBR™ for descaling.



A short time after the beginning of trials, scale removal was confirmed by higher loads of TSS in the SMBR™ effluent. In addition, within 5 weeks of testing, a 70% decrease of the media's scale deposit was measured. The ELSC system provides a permanent solution to scale related maintenance costs, such as high pressure washing and chemical cleaning.

DRY MEDIA WEIGHT EVOLUTION AFTER DESCALING SYSTEM START-UP

