ArchaeaSolutions, Inc.

Arkea® Bioaugmentation

ArchaeaSolutions, Inc. is a technical company comprised of scientists, engineers, and municipal/industrial wastewater professionals who specialize in providing bioaugmentation technology with Arkea® microbial cultures for wastewater treatment.

Other services offered:

- Microscopic lab analyses
- Consultation and training for wastewater process control
- Troubleshooting assistance

Arkea® Bioaugmentation is the addition of microbial cultures to a wastewater treatment facility (plant or sewer system) to achieve a specific goal in order to:

- reduce operational costs,
- achieve permit compliance, or
- correct an operational problem (Table 1).

Treatment Goals for Bioaugmentation Applications
Anaerobic digester biogas enhancement
Anaerobic digester sludge reduction
BOD and COD removal
Cold weather microbial activity improvement
Fats, oils, and grease (FOG) removal
Hydrocarbon removal
Lagoon sludge reduction
Nitrification improvement

Most bioaugmentation products only include bacteria. However, Arkea® products also include Archaea.

Arkea® Bioaugmentation increases the number of saprophytic (cBOD-removing bacteria) and nitrifying organisms in a treatment facility to a level where their enzymatic activity can be observed as an improvement in treatment performance. Bioaugmentation requires the selection of appropriate organisms (genera and number) to be added as well as a proper addition point for the organisms.

Archaea are a diverse group of single-cell, microscopic organisms that have no nucleus and other membrane-bound organelles. They have unique features that differ from bacteria. These features include:

- enzyme systems that can degrade organic compounds that bacteria cannot degrade
- higher metabolic rates that provide for more rapid degradation of organic wastes
- unique structural features that permit the Archaea to exist as extremophiles

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