It's not waste. It's energy.

AAT BIOGAS TECHNOLOGY

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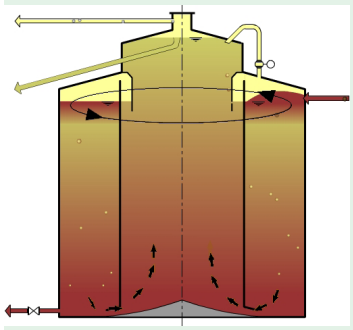
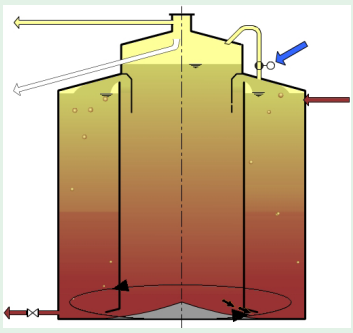
Hydraulic Digester

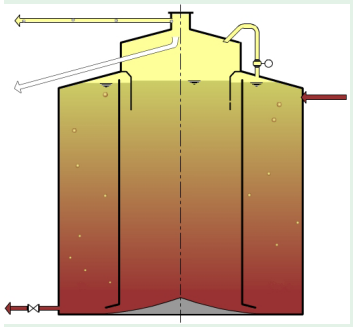
for substrate with a high sediment content.



Picture 1 - Maximum level difference beween main-digestion-chamber and final treatment chamber.



Picture 2 - Mixing process



Picture 3 - state after mixing process

The AAT hydraulic digester produces more gas for almost zero operation costs.

In the AAT digester biogas is produced from dissolved and solid organic matter in an environment devoid of oxygen. By separating the digester into a main and secondary compartment with an integrated substrate recycle a process environment ideal for anaerobic bacteria is created. Mixing of feed substrate and digester content is achieved by using the biogas generated within the digester.
The biogas head spaces of the main and secondary compartments are connected with a pipe including an automatic butterfly valve. By closing this valve biogas pressure increases in the main compartment and digester liquid is displaced into the secondary compartment creating a hydraulic gradient. After a defined level difference is reached between the two compartments the automatic valve opens and the displaced liquid returns at a high flow rate (back flushing) to the main compartment. Displacement of digester liquid and back flushing between the compartments are arranged such that scum layer and sediment formation is prevented.
Special design features provide dilution of scum and sediment layer as well as mechanical scum and sediment destruction. In-series operation of main and secondary digester compartments prevents short circuiting and creates ideal conditions for degradation of recalcitrant components contained in the substrate. Feeding of the digester is within the upper part of the main digester compartment.
The AAT system creates optimal process and mixing conditions for anaerobic degradation of organic matter without moving parts placed inside the digester and without external mixing energy. Long plant life, minimal maintenance and operator attendance result from the fact that no moving parts are located inside the digester.

Advantages:

- ✓ simple and robust construction
- ✓ high treatment efficiency
- ✓ very low operation- and maintenance costs
- ✓ own ground sludge and floating sludge withdrawal
- ✓ no moving parts inside the digester
- ✓ higher gas production than with CSTR digesters through the plug flow principle
- ✓ mixing also during a power blackout

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