TH4+: Thermal Hydrolysis for +

Thermal Hydrolysis for +

TH4+, the Thermal Hydrolysis for +, is the technology featuring super-quick heating that allows higher hydrolysis temperatures without harmful secondary reactions. This enables higher pressures and stronger flashes, more severely breaking the organic waste´s cell structure and making it easier to digest.

Its innovative design avoids the use of pumps, with subsequent gains in process reliability and maintenance cost.

TH4+ redefines thermal hydrolysis as a continuous process that overcomes the issues associated with batch processing.

Heat-integrated for greater energy efficiency and with a compact design, it is the state-of-the-art technology to help you squeeze more out of your sludge.

Redefining thermal hydrolysis

TH4+ advantages

- ⇒ Best-in-class technology
- ⇒ Continuous hydrolysis that overcomes the issues of batch processing
- ⇒ Super quick heating enables higher temperatures and pressures
- ⇒ No need to pump the viscous, highly abrasive organic material:
- ⇒ Higher reliability as eliminates recurrent mechanical problems
- ⇒ Lower maintenance cost
- ⇒ Optimized heat integration for lower specific energy consumption
- ⇒ Compact design with reduced footprint
- ⇒ Regulation tank ensures stable pressure control throughout the system

TH4+ process description

1. **Feed conditioning.** The organic waste is fed into dosification vessels and heated up with vapors from the heat recovery section (Step 3) for optimum heat integration and energy efficiency.

   Two parallel dosification vessels sequentially feed the organic material to pressurization tanks, where the waste is pressurized using compressed air or steam. This allows the organic material to flow through the process without the need for pumps or any other mechanical means.

2. **Hydrolysis.** The pressurized material enters a mixer, where live steam is injected to achieve the temperature setpoint in an extremely rapid manner.
   In conventional processes, the material to be hydrolyzed is kept at high temperatures for approximately 30 minutes, long enough for the material to undergo secondary reactions that reduce its methanogenic potential. This limits standard hydrolysis temperatures to 180ºC.

   The TH4+ process overcomes this limitation by means of an exceptionally quick heating time of below 5 seconds. This greatly minimizes the impact of the secondary reactions even at temperatures as high as 220ºC.
   The hot material is flashed to a regulation tank that provides a stable pressure throughout the system.

3. **Heat recovery.** The content of the regulation tank is fed to the flash vessel through a series of flash valves. This second sudden decompression further fractures the cells structure, making the material more soluble and biodegradable.

   The hydrolyzed liquid phase goes to the downstream anaerobic digestion, and the hot vapors are recycled back to the dosification tanks (Step 1) by means of a thermocompressor.

EUROPE, MIDDLE EAST & AFRICA:
+34 628 225537
infoeurope@tech4plus.com

NORTH & SOUTH AMERICA:
+1 305 851 1236
infoamerica@tech4plus.com

ASIA & OCEANIA:
+65 856 956 91
infoasia@tech4plus.com

www.tech4plus.com

teCH4