Discover more at ***www.cnp-tec.com***

cnp Technology Water and Biosolids Corporation designs and supplies systems for nutrient recovery and sludge optimization. Led by a team of wastewater industry veterans and supported globally by engineers with decades of experience in biosolids treatment, **cnp** continues to pioneer innovative wastewater system solutions.

CNP-Technology Water and Biosolids Corp.
9535 58th Place | Kenosha, WI 53144

T +1 (262) 764-3651
F +1 (262) 764-8705
E info@cnp-tec.com

In the Thick of It

Optimize your sludge treatment process, and move towards 100% energy independence!

Welcome to
PONDUS – Thermo-Chemical Hydrolysis Process (TCHP)

PONDUS Verfahrenstechnik GmbH

Conventional Sludge Treatment Processes are often Inefficient and Costly

With the PONDUS TCHP, however, you get more of what you want and less of what you don't, like:

- Increased Biogas Production
- Higher dry cake solids
- Increased digester capacity
- Reduced digester foaming
- No steam required – operates under atmospheric pressure
- Class A Biosolids option

Six European Installations
One North American Installation

PONDUS Keeps the Hydrolysis Process Simple!

Drastically reducing the overall carbon footprint by minimizing solid waste production, the process enables useful repurposing of biosolids (as fertilizer and carbon source) and methane gas outputs (as renewable energy).

Here's how it works:

Using caustic soda and hot water to destroy cell membranes of WAS, organic acids are released in the process. These organic acids are converted more quickly during the anaerobic digestion process, increasing biogas production by approximately 30%. The hydrolyzed sludge allows for:

- Dryer cake solids
- Lower polymer consumption

This results in lower dewatering and disposal costs.

Not to mention, the viscosity of the hydrolyzed sludge is drastically lowered (by up to 80%), creating vastly more efficient pumping and digester mixing. Using the heat from the hydrolysis process to heat the anaerobic digesters, operational costs of the system are further minimized.

Step by Step:
PONDUS Thermo-Chemical Hydrolysis Process (TCHP)

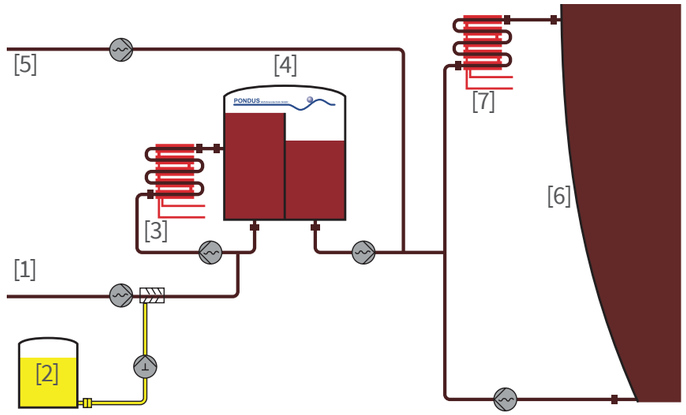
Thickened WAS [1] is mixed with a small dose of caustic soda (1,500 ppm) [2]

Heated in a loop through a high-efficiency heat exchanger [3]

Fed into a two-stage reactor [4]

Goes through Hydrolysis – Sludge is heated with 140 °F – 160 °F water coming from a Combined Heat and Power (CHP) unit (for example) – retention time may differ in reactor zones due to varying sludge properties – reactor operates under atmospheric pressure and is connected to the atmosphere or bio-filter – after the hydrolysis process, sludge leaves the reactor close to a neutral pH level – remaining thermal energy can be used in the anaerobic digester [6].

Primary sludge [5] and hydrolyzed sludge is mixed to achieve an ideal mesophilic temperature of the combined sludge and then pumped into the digester [6]. If needed, additional heat can be brought into the digester through a heat exchanger [7].



A Recap of the Benefits of PONDUS Hydrolysis (TCHP)

DESCRIPTION	RANGE
Increase of biogas production	25 to 35%
Reduction of polymer consumption at dewatering	Up to 20%
Increase of dry cake solids at dewatering	Up to 5%
Caustic soda consumption	1,500 to 2,000 ppm
Energy consumption	0.9 to 1 kWh/m³ Sludge
Reduction of viscosity in hydrolyzed sludge	Up to 80%