Process Flow TerraNova® Ultra with integral Phosphorous-Recovery

The process flow diagram shows the TerraNova® Ultra process with integral Phosphorous recovery steps. The dotted parts (bottom left and right) are being added to the standard process in case Phosphorous recovery is desired.

These are:

- An acidification step, that decreases the pH level of the HTC slurry below pH2 by means of Sulfuric Acid. This causes a leaching of the Phosphorous from the Fe- or Al components, generated in the upstream waste water treatment process, into the liquid phase. More than 80% of the sewage sludge Phosphorous is being transferred.

- A solid dosing step that adds Calcium-Silicate-Hydrate granulates (CSH) to the filtrate that is generated during the slurry dewatering step in the chamber filter press. The dissolved Phosphorous adsorbs at the CSH granulates.
- A dewatering step for the separation of the Phosphorous product. This product consists of amorphous P-components, Hydroxylapatite and Struvite and shows a good plant activity that reaches up to 80% compared to Superphosphate.