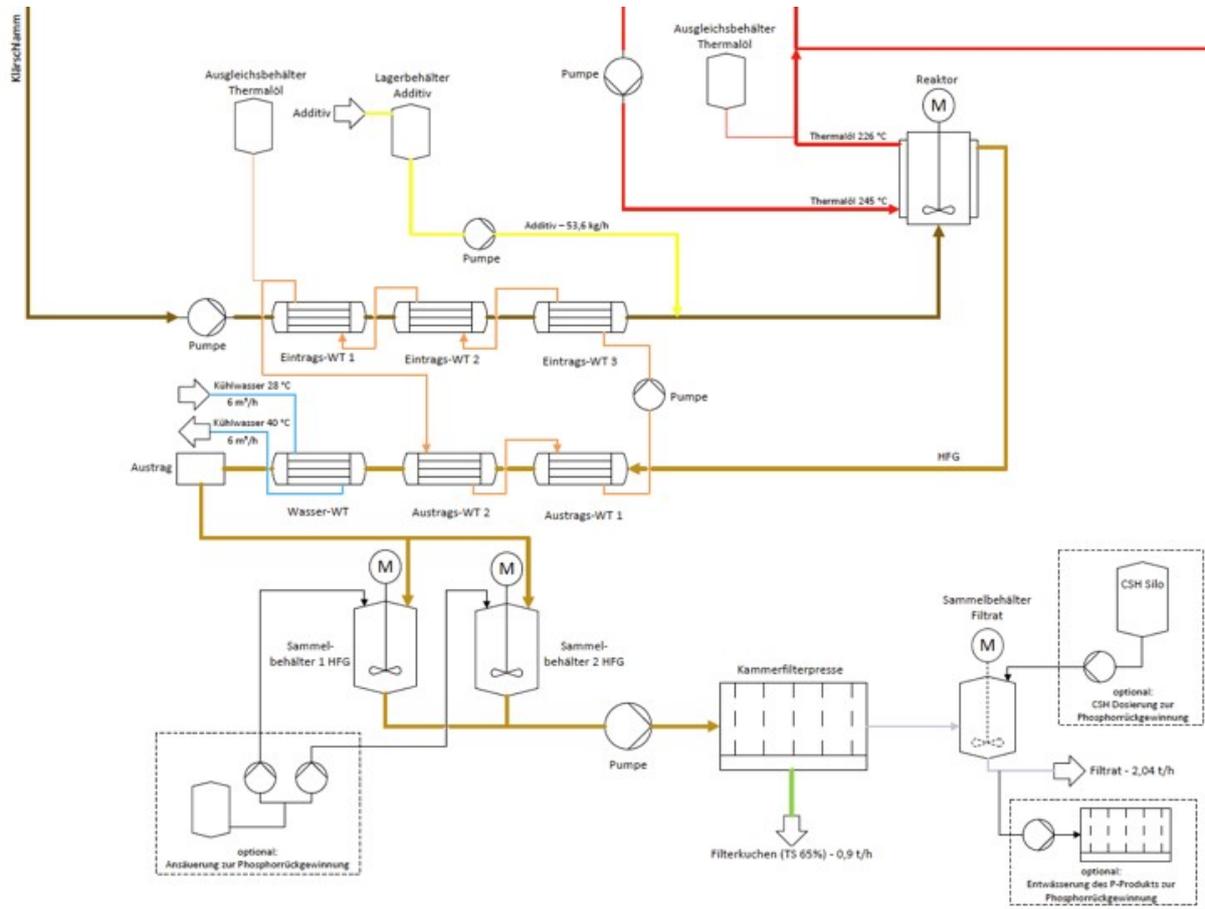


Process Flow TerraNova@ Ultra with integral Phosphorous-Recovery



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. This causes leaching of Phosphorous from 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 reaching up to 80% compared to Superphosphate.