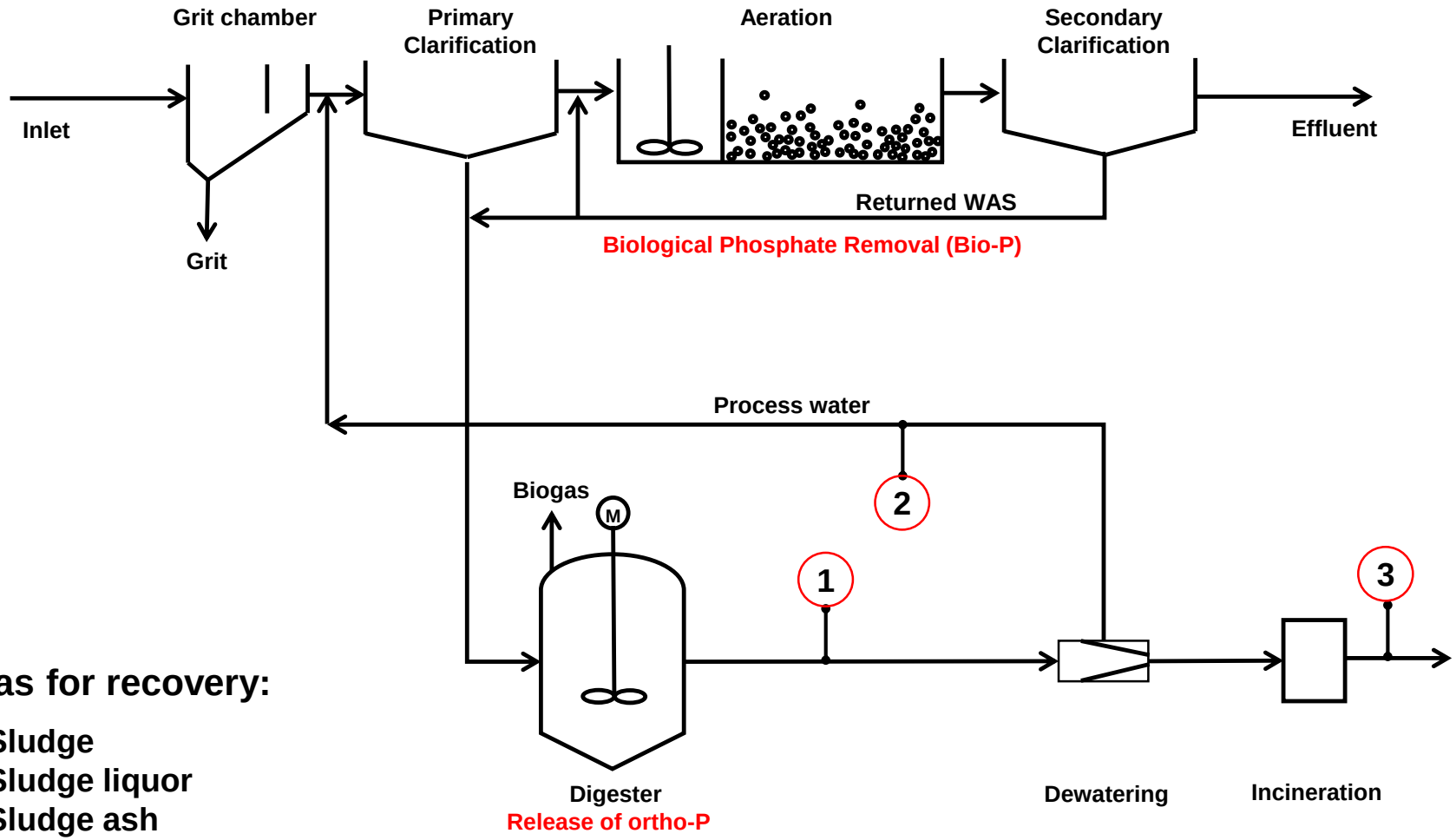
Processes for Phosphate recovery from Municipal Sludge

P-Recover from Digested Sludge

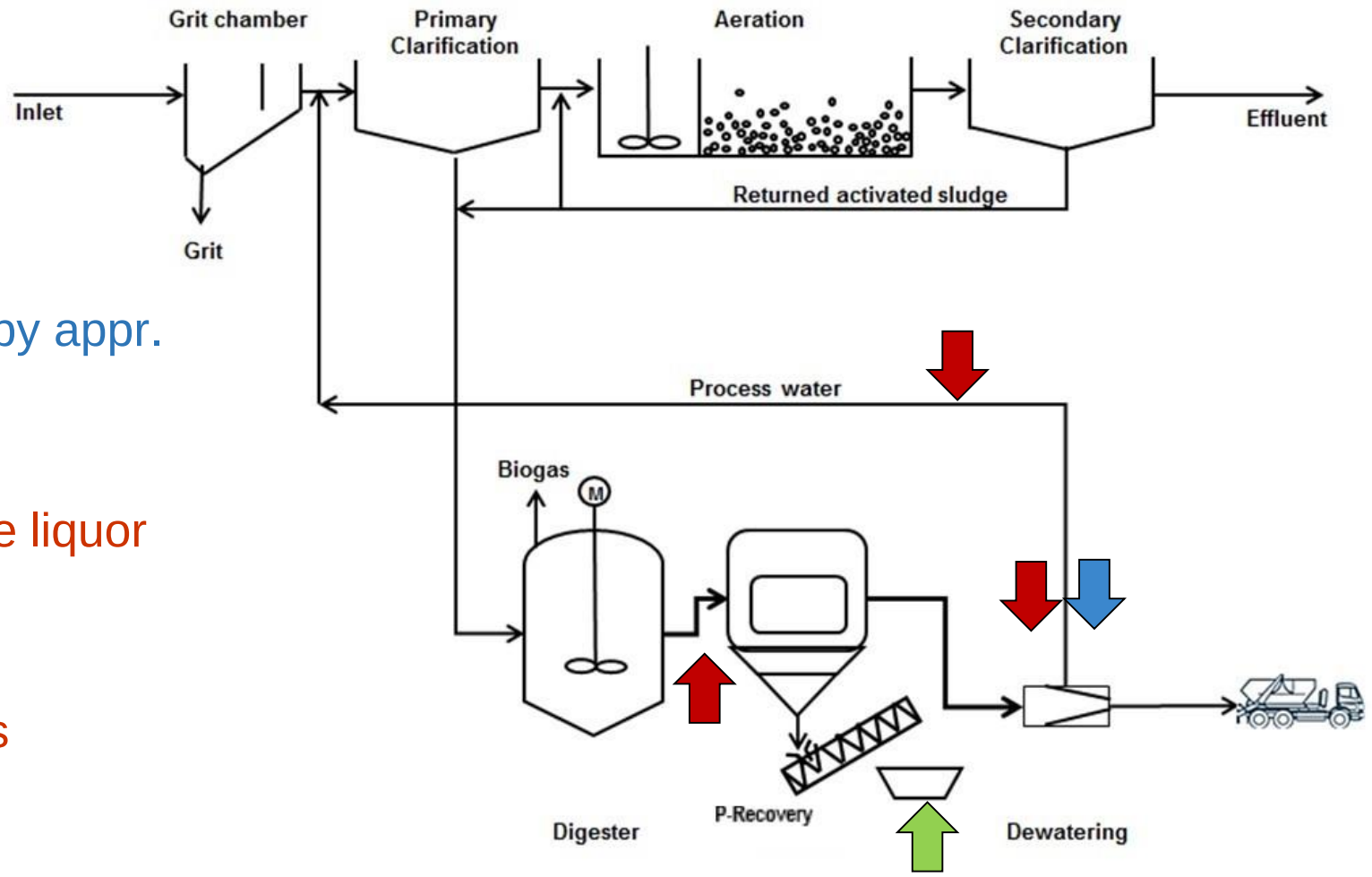
Possible areas for P-Recovery at WWTP



Areas for recovery:

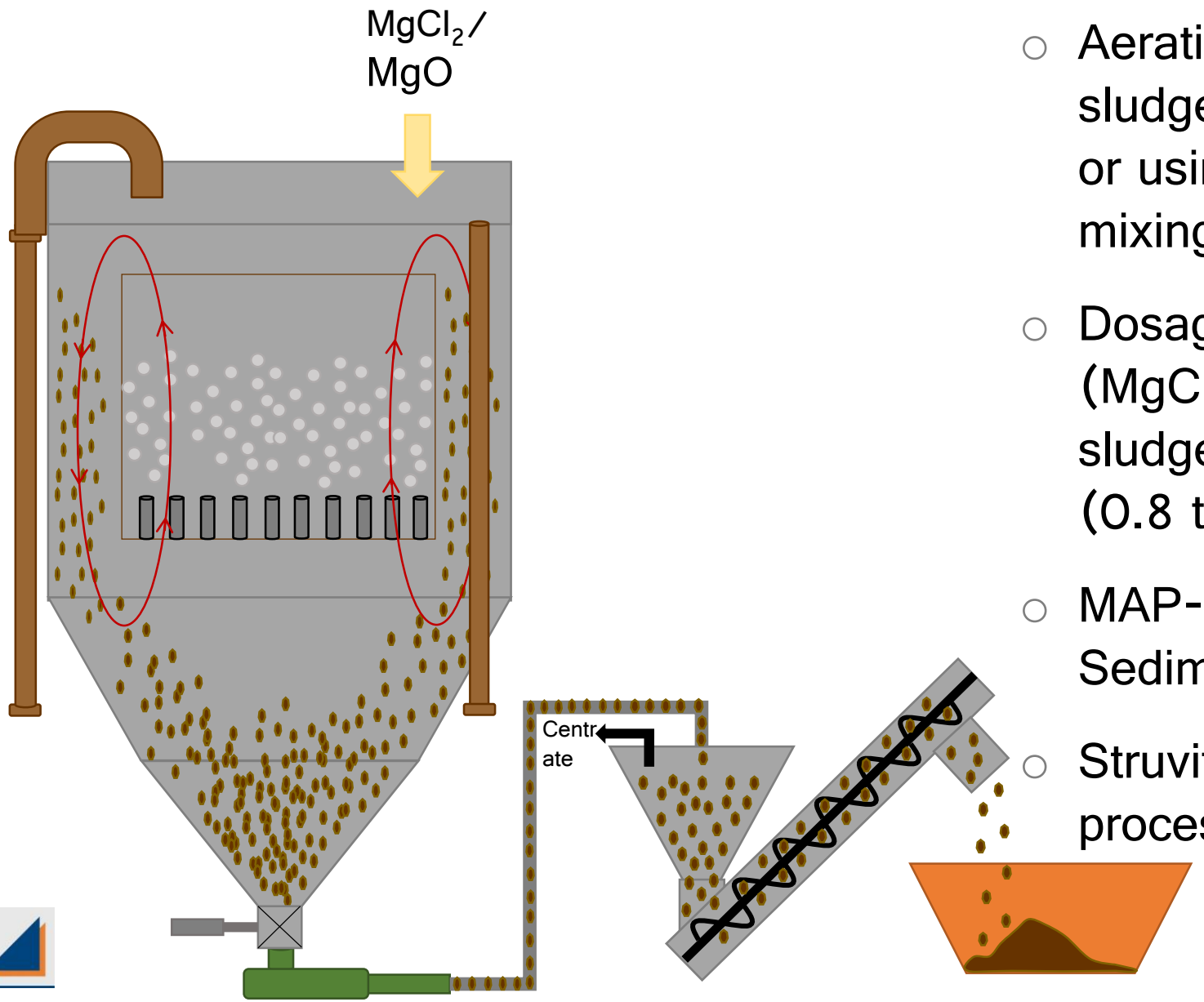
① **Sludge**
② **Sludge liquor**
③ **Sludge ash**

Economic drivers for P-Recovery Process



1. Increase of cake dryness by appr. 4% (e.g. 22% → 26%)
2. 95% reduction of Ortho-P concentration in the sludge liquor
3. Elimination / prevention of crystallization in the entire sludge- and centrate pipes
4. Production of Struvite

Process of MAP-Recovery



- Aeration to release CO_2- from the sludge to increase pH (7,8 – 8,2) or using Magnesiumoxide with mixing only.
- Dosage of Magnesiumchlorid ($MgCl_2$) approx. 2 – 3 ltr/m³ of sludge or Magnesiumoxid (MgO) (0.8 to 1.4 kg/m³)
- MAP-Crystallization and Sedimentation
- Struvite separation and washing process

P.C.S. POLLUTION CONTROL SERVICE

Mönchengladbach-Neuwerk
Motivation zur gezielten MAP-Fällung

Niersverband

Kläranlage MG-Neuwerk	(995.000 EW)
Kapazität Schlammbehandlung:	1.500 m³/d
MAP-Gewinnung:	ca. 1.500 kg/d
Inbetriebnahme:	2010

P.C.S. POLLUTION CONTROL SERVICE

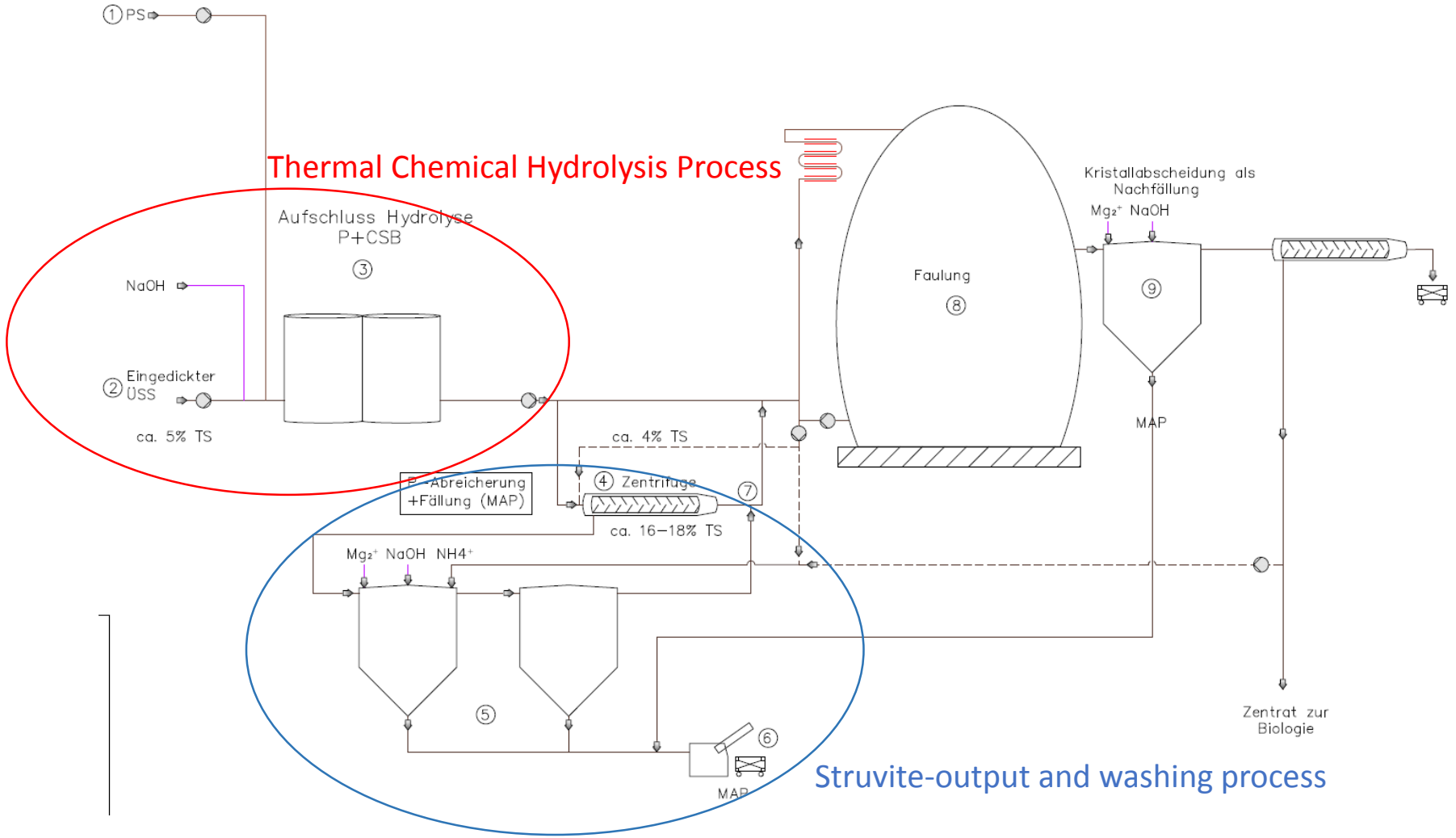
Amsterdam West

Waternet, NL
RWZI Amsterdam-West (1.000.000 EW)

Kapazität AirPrex:	2.500 m³/d
MAP-Gewinnung:	ca. 4.000 – 5.000 kg/d
Inbetriebnahme:	2013/2014

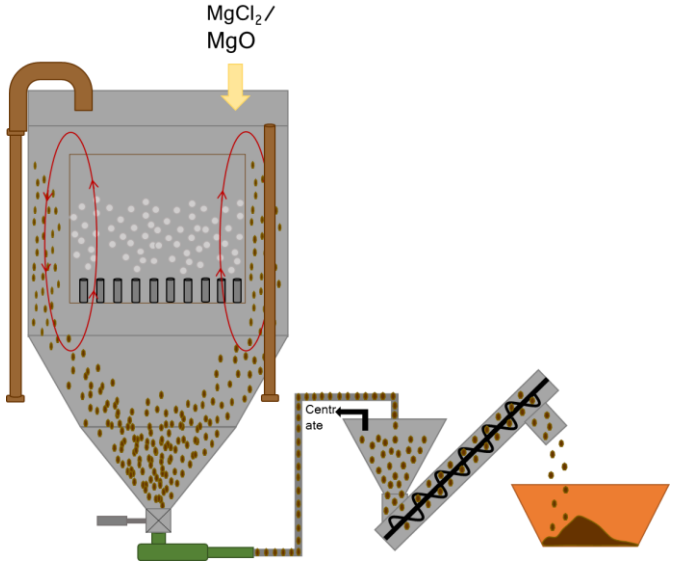
P.C.S. POLLUTION CONTROL SERVICE

Increased Phosphate recovery by the Struvex® Advanced Process in Combination with Thermal-Chemical Hydrolysis Process (TCHP)

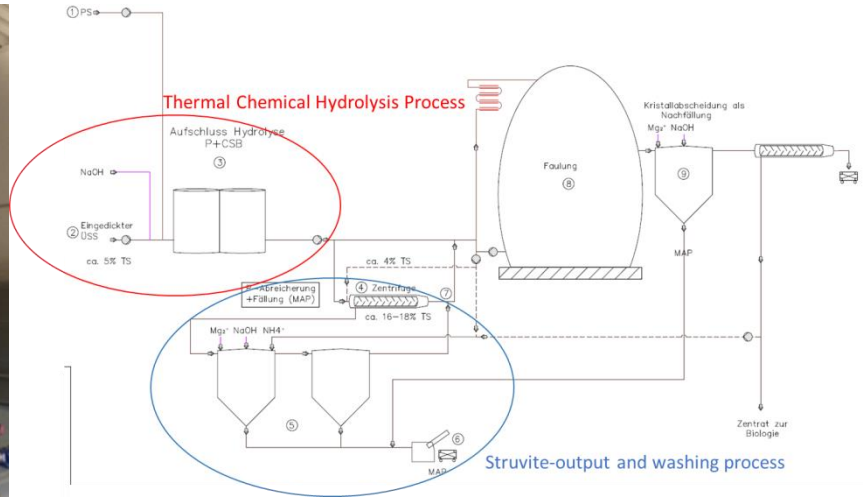


Focus

- ✓ Maximum in Struvite Recovery
- ✓ Increases in Gasproduction (+20 – 25%)
- ✓ Increase of sludge dewatering (+3 %)



Thank you for your attention



More information:
Bernd Kalauch
b.kalauch@pcs-consult.de
www.pcs-consult.de