SMART-Plant

Scale-up of low-carbon footprint material recovery techniques in existing wastewater treatment plants

SCEPPHAR

mainstream

Short-Cut Enhanced Phosphorus and PHA Recovery in Mainstream

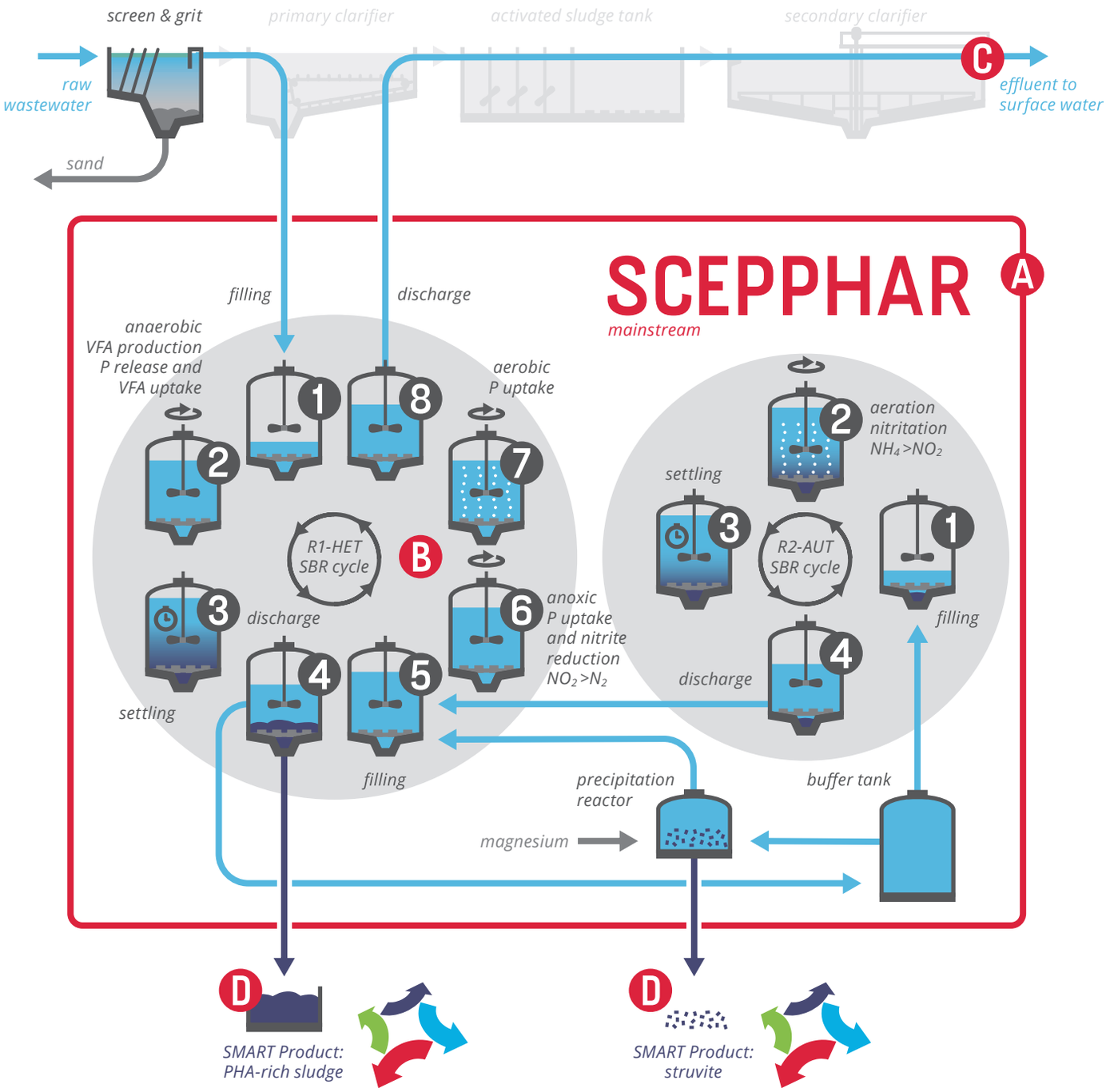
Treating wastewater while simultaneously recovering products in a mainstream process: these ambitious goals have been realised by the SCEPPHAR process developed by the Universitat Autònoma de Barcelona together with Aigües de Manresa S.A.. This two-sludge SBR system recovers up to 50 % of phosphorus and produces a sludge enriched with PHA, which can be processed to bioplastics or used to increase methane production during anaerobic digestion. While meeting comparable effluent targets, operational costs of the SCEPPHAR process are lower than traditional activated sludge systems.

Within the SMART-Plant project, the SCEPPHAR process is demonstrated in a mainstream configuration with a capacity of 10 m^3/d at the Manresa wastewater treatment plant (Spain).

The system is built to achieve effluent limits of P < 1 mg/L and N < 10 mg/L, removal up to 90 % of N via nitrite, recovery of around 50 % of the influent P and production of a waste sludge with a PHA content up to 30 %.

WWW.SMART-PLANT.EU

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690323



Unique Selling Points

A Reduced energy demand and operational costs

B No external carbon source or metal salt needed

C High effluent quality (P < 1 mg/L, N < 10 mg/L)

D Recover 50 % of phosphorus as struvite and sludge with 30 % PHA content

	Manresa WWTP	SCEPPHAR
P Removal	$FeCl_3$ addition	Biological
N Removal	Nitrification + Denitrification	Nitritation + Denitritation
Products	None	Struvite + PHA-rich Sludge

juanantonio.baeza@uab.cat
dguell@aiguesmanresa.cat

Universitat Autònoma de Barcelona

AIGÜES DE MANRESA S.A.
empresa municipal