

**Session Society: April 11th 13.45 hrs**

**2s1: What kind of circular society**

## **Struvia Demonstrator: Phosphorous recovery from Macroom Wastewater treatment plant**

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Phosphorus (P) is a vital life-sustaining nutrient that cannot be substituted or artificially produced. Mineral P fertilisers are critical to sustain modern farming practices and subsequent global food production. Mineral P fertilisers are typically derived from finite phosphate rock. There is much uncertainty over the long term sustainability of phosphate rock reserves, with some estimates suggesting that peak P will occur in the next 80-150 years. In recent years, numerous technologies have been developed to recover P from municipal wastewater. The recovered product can be used as an indigenous and renewable P fertiliser.

Several P recovery technologies have been developed to recover P using calcium (lime) precipitation. Lime increases the effluent's pH and calcium content, inducing favourable conditions to encourage precipitation and crystallisation of calcium phosphate. One of which is the Struvia pilot plant which has been developed by Veolia Environmental to recover P, from a number of P-rich waste streams. As part of this research, Veolia have provided the Struvia pilot plant on loan to the MTU Phos4you team. The pilot plant was cited on Macroom wastewater treatment plant (WWTP) as it was deemed as a typical Irish WWTP in both treatment scale and treatment process. Over a lengthy process, the plant was commissioned and optimised to recover P from the WWTP effluent. Overall a recovery rate of over 60% was achieved, sufficing the pilot plants emissions limits.

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*Keywords: Phosphorus, phosphorus recovery, wastewater treatment plant (WWTP)*