

## **Leaching behaviour of VAM bioreactor rest product at different stages of degradation in lab and pilot scale to assess potential utilization options.**

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### **ABSTRACT**

At VAM a bioreactor study was initiated in 1996 with the mechanically separated organic residue (MSOR) of a waste separation plant at the VAM treatment facility. This work focuses on the ultimate quality of the bioreactor end product for possible reuse. It aims to characterize the leaching behaviour at different stages of the degradation process in the bioreactor to be able to predict material behaviour in the long term. It is based on a comparison of the leaching behaviour of material degraded under optimal conditions at laboratory scale (3 m high columns) and degraded material recovered after 2.5 years from the full-scale bioreactor.

The characterization of the MSOR described consists of an evaluation of its leaching behaviour to assess long-term environmental impact. Since the material has specific characteristics not common to other materials for which evaluation criteria exist, new criteria for evaluation may need to be developed. These relate in particular to the residual generation of dissolved organic carbon, which acts as a carrier for trace contaminants – both inorganic and organic, morphological aspects and environmental impact.

The residual release of contaminants in dissolved organic carbon (DOC) associated form is a key issue in this respect. The use of DOC measurement at neutral pH as a means of establishing the status of degradation will be discussed in relation to measurements carried out after 2.5 years of degradation in the full scale pilot.