

RESUMEN

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ACTIVATED SLUDGE RECYCLING AND OXIDIZED AMMONIUM RECYCLING: INNOVATIVE STRATEGIES FOR ODOUR PREVENTION IN WWTPs

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Odour control is an increasing concern in WWTPs. Physical/chemical end-of-the-pipe technologies for odour abatement are relatively expensive and present high environmental impacts. Biotechnologies, on the other hand, have recently emerged as cost-effective and environmentally friendly alternatives but are still limited by their investment costs and land requirements. A more desirable approach to odour control is the prevention of odorant formation before being released to the atmosphere, but limited advances have been made in this field so far. In WWTPs, where different biological processes take place and many streams are available, there are opportunities to re-design processes in order to minimize odour generation.

This work explores two alternative strategies for odour control, Activated Sludge Recycling (ASR) and Oxidized Ammonium Recycling (OAR), by discussing their fundamentals, operating parameters and the available experience. Both technologies are widely applicable and cost-efficient, making use of readily available plant by-products. Results from full scale facilities show that the application of ASR and OAR strategies can reduce H₂S and mercaptans concentration by a 60-98% in malodorous streams at certain plant locations. Odour reductions of 50-89% have been reported in ASR scenarios (measured as odour threshold reduction and Standard Odour Emission Rates).

Calculations show their low CO₂ footprints, and even if odours are not completely eliminated these strategies allow a significant reduction in the need and cost of further odour treatment. ASR and OAR are expected to become common operating strategies in a near future, contributing to the sustainability and economic efficiency of odour control in WWTPs worldwide.

Indicar la preferencia de tipo de presentación

- ☒ Comunicación oral
- ☐ Póster

Indicar la sesión en la que los autores proponen presentar su trabajo:

- ☐ Sesión I. Formación de olores en el medio ambiente y emisión.
- ☐ Sesión II. Legislación sobre olores y Autorizaciones Ambientales Integradas.
- ☐ Sesión III. COVs y medidas de olor.
- ☐ Sesión IV. Sensores electrónicos para la detección de gases y olores. Modelos de dispersión de olores.
- ☐ Sesión V. Percepción de olores e impacto por olores. Olfatometría.
- ☒ Sesión VI. Técnicas para el control de olores.

El comité científico podrá revisar el tipo de presentación y la sesión en la que los autores proponen incluir su trabajo.

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