Technology Transfer Opportunity

Biofilm Control in a Membrane Bioreactor

OPPORTUNITY:
Biofilm Control in a Membrane-aerated Bioreactor

Description of Technology:

Biofilms, which comprise a community of microorganisms attached to a surface, have long been exploited for wastewater treatment. Unfortunately today's wastewater treatment technology does not harness the full potential of biofilms in aerobic processes due to the fact that a significant fraction of the biofilm remains anoxic as a consequence of poor oxygen penetration. The new technology addresses these issues and relates to a process and apparatus for optimising the operation of membrane aerated biofilm reactors.

Value Proposition:

Membrane aerated biofilm reactors have several advantages over conventional biofilm technologies including;

1. Comparatively high volumetric carbon oxygen demand (COD) removal rates are achievable.

2. Bubbleless aeration offers the potential for significantly higher oxygen utilization efficiencies with consequent energy savings.

3. Simultaneous nitrification, denitrification and COD removal can be achieved at comparatively higher rates due to the unique microbial population stratification.

4. Specialist degrading microorganisms, such as ammonia oxidizing bacteria, tend to be preferentially located adjacent to the biofilm-membrane interface thereby enhancing their retention by protection from biofilm erosion.

A problem recognised with such reactors is the uncontrolled growth of the biofilm which can lead to clogging of the system.

However, this new opportunity addresses this problem and provides a method of accurately measuring biofilm thickness, and an online system which utilises this method to detect excessive biofilm growth and thus automatically control the cleaning/removal of excessive biofilm when it is detected.

Market:
Environmental/Wastewater Treatment

Inventors:
Dr Eoin Casey, UCD School of Chemical & Bioprocess Engineering.

Status:
European Patent Application No. 08105130.2 filed 27th November 2008.

Opportunity Sought:
Available for licensing and/or co-development with a suitable industrial partner.

Contact:
Dr Claudia Wietek, Project Manager Technology Transfer, NovaUCD, Belfield Innovation Park, UCD, Belfield, Dublin 4.

t: 00-353-(0)1-7163722
e: claudia.wietek@ucd.ie
w: www.ucd.ie/nova

June 2009