

Queen's University Environmental Science and Technology Research Centre (QUESTOR)

The Queens University of Belfast, Wilson McGarel, Director, 44 02.890335577,
w.mcgarel@qub.ac.uk

Center website: <http://questor.qub.ac.uk/newsite/index.htm>

Prevention of Bulking at Sludge Wastewater Treatment Plants

Sludge bulking is a serious problem for wastewater treatment operators. Sludge bulking, when it occurs, is a very expensive problem to eradicate. One of the prime causes of sludge bulking is the filamentous bacteria, *Microthrix Parvicella*, which exists at low levels in many treatment plants without causing problems. When concentrations rise above a threshold level, however, bulking and foaming is the all too common result. It occurs in the settling tanks of activated sludge plants and results in a reversal of the settling process whereby solids float to the top of the tank rather than settling to the bottom. Researchers at The Queen's University Environmental Science and Technology Research Centre (QUESTOR) have developed a diagnostic test for the detection of *Microthrix Parvicella*. The test prevents the occurrence of foaming or sludge bulking at activated industrial and municipal sludge wastewater treatment plants. The technology enables operators of treatment plants to monitor the concentration of *Microthrix* and take remedial action before the serious problem of sludge bulking or foaming occurs.

Previously there had been no effective means for operators to monitor the concentration of *Microthrix Parvicella*. As a result sludge bulking occurred randomly and without warning. This new technology allows operators of treatment plants to detect and prevent the occurrence of sludge bulking and to take more economical remedial action before the problem occurs.

Economic Impact: This technology has resulted in a new commercial product known as SLUDGE-GUARD, a powerful ELISA test kit that quantifies and allows small changes in the concentration of *Microthrix Parvicella* to be detected. A one-step test kit for rapid detection is also under development.

For more information, contact Wilson McGarel, 44 02.890335577, w.mcgarel@qub.ac.uk.



