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MONITORING OF NITRATES AND PHOSPHATES IN WASTEWATER: CURRENT TECHNOLOGIES AND FURTHER CHALLENGES

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Abstract- Consumers expect water supply companies to deliver safe drinking water that meets both health quality standards and aesthetic requirements such as colour, turbidity, taste and odour. Current water quality assessment methods of these parameters, which form the basis for sound water resources management, are mainly laboratory based, require fresh supply of chemicals, trained staff and are time consuming. Real-time water quality monitoring is essential for National and International Health and Safety, as it can significantly reduce the level of damage and also the cost to remedy the problem. This paper critically analyses both commercially available and state-of-the-art research methods and devices suitable for real-time wastewater quality monitoring and suggests further developments in this area. In particular, the focus is made on the monitoring of nitrates and phosphates in wastewater and a novel microwave based method for instantaneous water quality assessment is suggested.

Index terms: water quality monitoring, *in situ* analysis, optical methods, industry, nitrates and phosphates, lab on chip sensors, microwave sensors, solid-state sensors.