

## **Treatment of azo dye Orange II in aerobic and anaerobic-SBR systems**

### **Abstract**

The performance of aerobic- and anaerobic-SBR in treating Orange II-containing wastewater was investigated. The result from a specific oxygen uptake rate (SOUR) study showed that the Orange II compound did not exert significant inhibitory effects on the activity of activated sludge microorganisms. It was found that Orange II and organic loading rates affected the treatment performance in terms of COD and Orange II removal efficiencies in the SBR systems. The increase of organic loading rate from 2.66 to 5.32 g COD/l day had slightly improved the COD removal efficiency in aerobic-SBR but deteriorated the COD removal efficiency in anaerobic-SBR. On the other hand, the increase of organic loading rate improved the Orange II removal efficiency in both SBR systems. In the case of 100 mg/l Orange II addition, the average fraction of Orange II removed was 15 and 80% in aerobic- and anaerobic-SBR, respectively. The anaerobic microbes exhibited five times higher Orange II removal rate compared to aerobic microbes.

### **Keywords**

Activated sludge; Azo dye; Colour removal; Orange II; SBR