

# LONG TERM OPERATION OF PARTIAL NITRIFICATION PROCESS TREATING HIGH AMMONIUM CONCENTRATION WASTEWATER

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## **Abstract**

Partial nitrification is a promising technology for nitrogen removal from wastewater. The major challenge is its stability at low temperature and nitrate accumulate because nitrate oxidizing bacteria (NOB) abundance increasingly.

The goal of this work was to investigate the long-term operation of partial nitrification processes at low temperatures. Integrated fixed-film activated sludge that combines the activated sludge and attached biofilm has been applied in mixed wastewater treatment to promote nitrification. Stable nitrite accumulation ration remained over 91% and the COD in the effluent met China's national standards.

The potential of partial nitrification systems to compete with conventional treatments for biological nitrogen removal both in terms of removal rates and overall effluent quality was proven.

**Keywords:** partial nitrification, low temperature, nitrite accumulation, long term