

**Kulikowska, D., Bernat, K., Sus, K. Crude Glycerine as the Carbon Source During Nitrogen Removal from Municipal Landfill Leachate using Activated Sludge Process. *Ochrona Srodowiska* 2013, Vol. 35, No. 2, pp. 41–45.**

**Abstract:** This work documents possibility to use crude glycerine (by-product from biodiesel production) as an external organic carbon source in nitrogen removal from municipal landfill leachate by nitrification-denitrification in the activated sludge process. The process was carried out in the three sequencing batch reactors (SBRs) at limited concentration of oxygen dissolved in the aeration phase of  $0.7 \text{ gO}_2/\text{m}^3$ . The external organic carbon sources were sodium acetate and crude glycerine applied in different proportions (1:0, 3:1 and 1:1). Under these conditions ammonium nitrogen oxidation efficacy was over 98% and nitrates (III) were the main products of the nitrification process. It has been shown that the type of organic carbon used affected both the denitrification efficacy and the sludge yield. The highest efficacy of denitrification (about 63.8%) and of nitrogen removal (76.3%) was achieved when sodium acetate and glycerine in proportion 1:1 were used as external organic carbon source. In this case also the lowest netto biomass yield in the activated sludge (0.54 g/g) was received.

**Keywords:** Nitrification, denitrification, sequencing batch reactor (SBR), activated sludge yield.