

Kalenik, M. Sewage Treatment Efficacy of Sandy Soil Bed with Natural Clinoptiolite Assist Layer. *Ochrona Srodowiska* 2014, Vol. 36, No. 3, pp. 43–48.

Abstract: Model studies on sewage treatment in a sand bed with natural clinoptiolite assist layer of 0.1 and 0.2 m were carried out. It was observed that with regard to the basic quality parameters (total suspended solids, BOD₅, COD, nitrogen, phosphorus), the effluent complied with the Polish sewage discharge standards. The sandy soil bed with natural clinoptiolite assist layer of 0.20 m was demonstrated to be more effective in sewage treatment when compared to 0.10 m bed. Application of the assist layer of 0.2 m clinoptiolite in the sand bed improved removal efficacy of total suspended solids (av. 3.5%), BOD₅ (av. 9%), COD (av. 11%), total nitrogen (av. 8%) and total phosphorus (av. 59%) when compared to the bed with 0.10m assist layer. Studies confirmed that natural clinoptiolite may be used to assist nitrogen and phosphorus removal from sewage *via* subsurface sewage disposal drains. However, very good efficacy of total suspended solid removal from sewage in the tested soil beds may lead to bed colmatation under subsurface sewage drain field. Therefore, settling tanks should be designed so that they could retain the greatest possible amount of total suspended solids (*e.g.* multi-chamber tanks instead of one-chamber tanks).

Keywords: Home sewage treatment plant, subsurface sewage drain field, total suspended solids, BOD₅, nitrogen, phosphorus.