

Variation in VIP latrine sludge contents

BF Bakare*, KM Foxon, CJ Brouckaert and CA Buckley

Pollution Research Group, School of Chemical Engineering, University of KwaZulu-Natal, Durban 4041, South Africa

Abstract

This study investigated variations in the characteristics of the sludge content from different ventilated improved pit (VIP) latrines and variation in these characteristics at specific depths within each pit. Faecal sludge from 16 VIP latrines within the eThekweni Municipality was collected and laboratory characterisation including moisture content, total and volatile solids, chemical oxygen demand, and aerobic biodegradability was performed. Sludge samples were collected from 4 specific depths within each pit investigated. The laboratory characterisation performed showed that none of the VIP latrines investigated had the same sludge characteristics, and that within a pit sludge characteristics varied with increasing depth in the pit. This supports the motivating hypothesis that, depending on household habits and local environmental conditions, there should be considerable variation in the organic contents, moisture content, non-biodegradable content and microbial population between different pits. This variation with increasing depth within a pit is expected, since fresh material is constantly being added to the pit overlaying older material which might have undergone a certain degree of stabilisation.

Keywords: stabilisation, household habits, aerobic biodegradability, sustainable