

Al-Malack, M. H.; Abuzaid, N. S. and Bukhari, A. A. "Chemical Characteristics of Municipal Sludge Produced at Three Major Cities of Eastern Province of Saudi Arabia". *Journal of King Saud University (Engineering Sciences)*.

Abstract. Due to uncontrolled dump of dried municipal sludge and its use by farmers as soil conditioner and/or fertilizer, an extensive research was conducted in order to determine the physical and chemical characteristics of municipal sludges produced at three major cities, namely, Qateef, Dammam and Khobar in the Eastern Province of Saudi Arabia between April 1999 and May 2000. Sludge samples were collected, from sand drying beds, twice a season for one year and were analyzed for certain potential parameters such as total solids, oil and grease, nitrogen compounds and heavy metals. The results indicated that total solids concentration in dried sludge samples collected from the three cities was found to reach 87 per cent, which was higher than that reported in literature and that volatile solids were within those reported internationally. Dried sludge samples collected from Dammam were found to contain the highest oil and grease concentration when compared to other cities that was attributed to the industrial activities in that city. With respect to sludge fertilizer value, sludge samples collected from the three cities were found to be deficient in nitrogen. With respect to heavy metals, sludge samples collected from the three cities were found to contain concentrations that are within ranges reported in literature.