



Variations in the properties of leachate according to landfill age

Marta Gómez^{a,*}, Francisco Corona^{a,b}, María Dolores Hidalgo^{a,b}

^aCARTIF Centro Tecnológico, Boecillo, Valladolid, 47151, Spain, Tel. +34983546504; emails: margom@cartif.es (M. Gómez), fraenc@cartif.es (F. Corona), dolhid@cartif.es (M.D. Hidalgo)

^bITAP Institute, University of Valladolid, Valladolid, 47010, Spain

Received 17 October 2018; Accepted 7 March 2019

ABSTRACT

A comparative study of the leachate composition between different types of landfills in Spain and Europe from the point of view of one of the factors that most influence in the leachate composition, such as the landfill age, among others, was carried out. For this purpose, 13 leachate samples from different Spanish landfills were analysed to determine concentrations of organic compounds, for instance COD and BOD₅, inorganic compounds, as calcium, magnesium, potassium, sodium, ammonia, chlorides, sulphates, etc., heavy metals and other physical parameters including pH and conductivity. The leachate composition varied widely because it is affected by many factors such as age and quality of waste, climatic conditions, among others. The results show that there are significant differences between the leachate samples. As the landfill age is higher, the concentration of the leachate constituents decreases due to the processes of stabilization of the waste that occurs within the landfill. On the other hand, comparing the results obtained between the samples of young leachates from different Spanish landfills and young leachates from different European landfills, large variations are observed due to not only the seasonal variations, but also the type of waste that is mostly treated in landfills.

Keywords: Landfill; Leachate; Waste treatment; Municipal waste

* Corresponding author.

Presented at the 6th International Conference on Sustainable Solid Waste Management (NAXOS 2018), 13-16 June 2018, Naxos Island, Greece.

1944-3994/1944-3986 © 2019 Desalination Publications. All rights reserved.