TO DETERMINE AND CALCULATE THE CONCENTRATION OF HEAVY METALS IN SHREDDED TIRE

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ABSTRACT

Shredded scrap tire provide a valuable source of embankment material for highway construction. However, one of the major concern regarding the usage of shredded tire is the potential for heavy metals to leach out from the material and contaminate the surface and groundwater. The objective of this study is to investigate the leachate characteristic of heavy metals in shredded tire. The metals studied in this study are Aluminium, Cadmium, Copper, Iron, Cobalt, Manganese and Zinc. These metals were determined by Toxicity Characteristic Leaching Procedure (TCLP) test, which is the mandatory test in the US for assessing whether or not a waste should be considered hazardous. At pH 5.0, the concentration^ mg/L) for Al, Cd, Co, Cr, Cu, Fe, Mn, Pb and Zn were found to be 0.816, 0.0005, 0.10, ND, 0.30, 78.57, 1.11, ND and 0.08 respectively. The concentration of all the heavy metals, except for iron and Mn, does not exceed the MCL by set EPA. Similarly, when compared to The Parameter Limits (standard B) under Environmental Quality Act, 1974, it is found that iron and Mn exceeded the limit under Environmental Quality Act, 1974. The concentration of iron 263 times higher than the maximum concentration levels set by EPA. However, iron does not exceed the parameter limit set by Minnesota Pollution Control Agency.