



THE STRENGTH AND LEACHING BEHAVIOUR OF SCRAP METAL CONTAMINATED SOILS USING CEMENTITIOUS MATERIALS

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Abstract: Solidification / stabilization is one of the most efficient technologies to restrict the leaching of heavy metals. Two stabilizers had been used as solidifying / stabilizing cementitious materials. Cement adjusted by clinker kiln dust were used as cementitious materials. The contaminated soil has been collected on a scrap site located in a residential area located 15 km south of Baghdad. Depending on the structure of metal analysis indicated that the highest metals existing in the soil were aluminium (6865 mg/kg), iron (30120 mg/kg), copper (175 mg/kg), zinc (560 mg/kg), lead (320 mg/kg). The unconfined compressive strength, Toxicity Characteristic Leaching Procedure (TCLP) and Scanning Electron Microscopy (SEM) were applied to estimate the efficiency of the treatment process. The results of the treatment were compared with the criteria for the admission of solidified waste, that were created on the basis of the regulatory limit on the disposal of waste at a disposal site in the United Kingdom, and the maximum concentration of toxicity contaminants, which is characteristic of Solid waste from the US Environmental Protection Agency(USEPA). The results showed that high alkalies in clinker kiln dust increase cement setting and hydration and increased compressive strength of cement. Therefore, dust high alkali altered cement reduces the discharge of heavy metals and increases the compressive strength of the waste form by the solidification / stabilization process.