

## Study of the solidification of tannery sludge in cement matrix

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The treatment of waste, particularly those generated in industries, has contributed to aggravate the process of environmental degradation, especially in large urban centers. An alternative of proper disposal of industrial waste is the solidification of waste using cement. The solidification technique with cement is remarkably efficient for residues with high concentrations of heavy metals. The high pH of the cement mass favors the transformation of cations into insoluble metal hydroxides and carbonates, thereby fixing the pollutants in the hardened matrix. The crystalline structure of the hardened cement also helps to retain the free metal ions that react during the picking and hardening process of the mixture [1]. The aim of this work was to use and analyze the solidification stabilization technique for the treatment of industrial sludge from tannery, as well as an evaluation of the integrity / durability of the material stabilized by solidification in terms of water absorption, Compressive strength and humidification / Drying. Samples containing 20% by mass of aggregate residue are obtained to obtain test specimens and also Portland cement as a binder with 7 days of curing time. The results showed that the materials have presented satisfactory results, the compressive strength, the water absorption capacity and the humidification / drying. With respect to the compressive strength 7.26 MPa for the CP with residue and 16.24 MPa for the CP without residue; For the parameter of absorption capacity of 5.4%; Regarding the humidification and drying CPC residue presented 5.91% and without residue 7.36%. The Stabilization by Solidification showed to be effective in the treatments of tannery residue, obtaining values according to the maximum and minimum limits allowed by the Legislation.

[1] J.R. Cláudio, Resíduos Hazardous Solids: Solidification of toxic sludge with cements. Escola de Engenharia de São Carlos, Universidade de São Paulo, 1987.