Waste inertization in binding matrix

Abstract

The main objective of the thesis W***aste inertization in binder matrices*** was to study the possibilities of inertization and stabilization of some waste in inorganic binder matrices based on Portland cement. For this, two directions were followed:

1) ***The use of waste or by-products from different industries which may constitute additives at different stages in the production of silicate inorganic binders, type Portland cement***. For this purpose, in the thesis was used a bottom ash from a power plant (waste / by-product resulting from burning coal in a power plant) as a ***alternative raw material***, so as a corrective in the mixture of raw materials, as well as a fly ash resulting from manufacture of the chipboard as an ***addition to the grinding of the Portland cement clinker*** in order to obtain the cement.

2) ***The use of waste or by-products from different industries that can be inerted in different silicate binder matrices***. For this purpose, in the thesis is analyzed the inertization and stabilization in binding matrix of a rich in chromium waste, which is resulting from the industry of obtaining potassium dichromate, as well as a leachate / sludge from a waste treatment plant. In the case of these inertizations and stabilizations, several silicate binder matrices, based on Portland cement, were used, such as type II cements A - M and A - L, B - M, as well as various special cements called INERCEMs (for example INERCEM A, C, D, E).

Also, studies were performed on the influence of these wastes / by-products on the hydration-hydrolysis processes of the binder systems used, as well as on the specific properties of the mortars based on them, including stability tests.