

Utilization of Industrial Wastes from Mediterranean Biomass Cogeneration Plants in the Design of Lime/Cement Based Mortars

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The use of industrial wastes with hydraulic or pozzolanic properties - silica fume, fly ash, blast furnace slag - as admixtures in cement based materials are focused to decrease the production costs, to improve microstructural properties of the end product and also in environmental aspects of converting waste materials into value added components. In the Mediterranean area (Andalusia) the use of olive biomass for cogeneration plants is an emerging activity in the energy field, which produces vast amounts of mineral wastes (fly ash and slag). The present work is related with the use of these un-explored industrial wastes as admixtures in the elaboration of mortars. Wastes coming from different plants were examined. The mineral oxide content of Na, K, Mg, Fe, ranged in a 25 -34 % interval, while that Ca, Al, Si oxides ranged in a 36 - 46 % interval. Fly ash and slag were used as received and also after neutral and acid leaching treatment. Some properties of mortars were enhanced by the use of these new admixtures.