

CEMENT KILN DUST (CKD) - BASED SORBENT FOR FLUE GAS DESULFURIZATION

By Tarun R. Naik and Fethullah Canpolat

Reference: CBU-2003-48

ABSTRACT

Cement is an exceedingly important material for modern society. It is produced cheaply and on a very large scale worldwide. World production of cement in 2002 was about 1.8 billion tons (about 0.4 ton for each person in the world)

“A typical portland cement is manufactured by feeding materials containing appropriate proportions of lime, silica, alumina and iron into the upper end of a kiln. The mix passes through the kiln at a rate controlled by the slope of the kiln and the speed at which the kiln rotates. Burning fuel is forced into the lower end of the kiln where it produces temperatures of 1400-1500 °C, changing the raw mix to a cement clinker. During this operation a small percentage of the material in the form of dust (CKD) can vary from plant-to-plant depending on the raw materials used and producing the same cement type will typically have relatively consistent composition”.

A new concept in resource recovery is explored within this report. In that waste from one industry was utilized to mitigate emissions from another. The waste utilized was bypass dust, a type of Cement Kiln Dust (CKD). The industrial emission treated was sulfur dioxide from a thermal electric power generating station.