

Catalytic Photodegradation of Polycyclic Aromatic Hydrocarbons in coal dumps

**M^a Jesús García Martínez, Ignacio Da Riva, Laureano Canoira and Juan F.
Llamas.**

ETSI Minas Madrid. Departamento de Ingeniería Química y Combustibles, Madrid, España.

E-mail: fllamas@qyc.upm.es

ABSTRACT

The aim of this work is the study of the photodegradation of polycyclic aromatic hydrocarbons in aqueous mixtures of fossil fuels, using titanium dioxide (anatase) supported on Pyrex glass Raschig rings as catalyst. Tests have been done with different kinds of fuels and with soil of a coal dump in a continuously stirred photoreactor. The samples of irradiated aqueous solutions and the organic fractions from the experiments were extracted by Solid Phase Extraction (SPE) and Soxhlet extraction. These samples were later analysed by gas chromatography-mass spectrometry. The chromatographic analysis of the samples shows that it is possible to reach a high degradation rate of the polycyclic aromatic hydrocarbons in the water soluble fraction (WSF). The organic fraction shows greater resistance to photodegradation.