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Concentration levels and heavy metals content of PM10 airborne particulate at the ceramic cluster of Castelló

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The aim of this work is to measure the concentration levels and chemical composition of PM10 at the ceramic cluster of Castellón, a city in the Mediterranean Spanish coast. Atmospheric aerosol samples were collected in L'Alcora, a city in the ceramic cluster of Castellón with the major production of colours, frits and ceramic tiles of Spain (around of the 75% of the Spanish production) from August to December 2005. A medium-volume sampler equipped with a PM10 inlet, a high-volume sampler for total suspended particles (TSP) and a TEOM sampler were located at a urban site. Another medium-volume sampler equipped with a PM10 inlet was located in an industrial area. Mean daily PM10 levels were compared with the limit values of the EU Air Quality Directive EC/30/1999. Results showed that daily values were higher at the industrial site than at the urban location, although daily limit values don't meet requirements for the year 2005 in both sites. The TEOM sampler shows the evolution of PM10 levels during the day.

Nickel, cadmium, arsenic and lead were analysed by inductively coupled plasma (ICP-MS). Ambient level concentrations were compared with limit values of the EU Air Quality Directive EC/30/1999 for lead and the EU Directive 2004/107/CE for nickel, cadmium and arsenic. Atmospheric levels measured at the industrial area were higher than in the urban area. Although results show that the mean values meet the requirements, lead and arsenic concentrations are higher than in other Spanish cities.

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