

Chemical characterization of the inhalable particulate matter in the city of Chillan, Chile

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Inhalable particulate matter (PM₁₀) measurements were performed in six different sites in the city of Chillán, Chile, during September 2001 to September 2002. Chemical composition of PM₁₀ was performed to samples of 47 mm diameter Teflon membranes within the city of Chillán. The spatial and temporal variability of the chemical composition of PM₁₀ was evaluated taking into account additional data from meteorology and further air pollutants. The chemical analyses of PM₁₀ showed that carbonaceous substances and crustal material were the most abundant components of PM₁₀ during the winter and summer, respectively. The concentrations of PM₁₀ were higher during the cold season than during the warm season. This was explained mainly due to the massive use of wood as fuel for residential heating within the city of Chillán, producing a dense smoke cloud in those days of atmospheric stability. The PM₁₀ concentrations were higher in the downtown area of the city of Chillán, where also the chemical