

技术及应用

大气颗粒物PM₁₀和PM_{2.5}元素组成的中子活化分析

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摘要 在北京市郊区设立采样点, 使用Gent采样器收集PM₁₀ (直径小于10 μm) 和PM_{2.5} (直径小于 2.5 μm) 大气颗粒物。利用仪器中子活化分析 (INAA) 法对2005年春、夏两季采集的样品进行测量, 用 k_0 法中子活化分析 (ADVNA软件) 对元素含量进行定量计算, 得出春季PM_{2.5}平均浓度为41.43 μg/m³, PM₁₀平均浓度为140.82 μg/m³; 夏季PM_{2.5}平均浓度为50.63 μg/m³, PM₁₀平均浓度为119.10 μg/m³。通过分析可以看出, 样品中污染元素随季节、气象条件变化, 并通过富集因子来寻找污染元素的来源。[JP]

关键词 [仪器中子活化分析](#) [k₀法](#) [大气颗粒物](#) [富集因子](#)

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Element Composition Analysis of Airborne Particulate Matter (PM₁₀ and PM_{2.5}) by Instrument Neutron Activation Analysis

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Abstract A sampling station was set up in the suburb of southwest Beijing. PM_{2.5} (diameter < 2.5 μm, fine) and PM₁₀ (diameter <10 μm, coarse) airborne particulate matter (APM) were collected by a Gent stacked filter unit sampler. The samples, collected during spring and summer of 2005, were analyzed by k_0 instrument neutron activation analysis (INAA) using the software of ADVNAA. The average volume concentrations of PM_{2.5} and PM₁₀ APM during spring season are found to be 41.43 μg/m³ and 140.82 μg/m³, respectively, while those during summer season are 50.63 μg/m³ and 119.10 μg/m³, respectively. The major pollution elements and their variations with season and special weather condition are primarily identified by enrichment factor analysis.

Key words [instrument](#) [neutron](#) [activation](#) [analysis](#) [k₀](#) [method](#) [airborne](#) [particulate](#)

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