

PIXE analysis of atmospheric particulate matter collected on a quartz-fiber filter

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Abstract

In order to establish a PIXE analysis method for elemental analysis of atmospheric particulate matter collected on a quartz-fiber filter, we collected NIST urban particulate matter (SRM 1648) with Pd-carbon powder mixed in on a quartz-fiber filter in one of two ways: under dry or wet conditions, carried out simple preprocessing suited to PIXE, and investigated detachment of the collected sample from the filter and analysis accuracy. We were able to confirm almost complete detachment of the collected sample from the filter sample by means of a nitric acid-microwave method that used a simple small container. Elemental values determined by PIXE analysis were almost completely consistent with NIST certified values and/or non-certified values.