

Standard-free method for hair samples in In-air PIXE

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Abstract

Standard-free method for untreated hair samples in in-air PIXE has been developed. It is confirmed that the method gives us good sensitivity and accuracy within several minutes' measurement if more than twenty hairs are attached onto the target. Even in the case where the number of hairs is less than eight, which is regular for usual in-vacuum PIXE, 10-15 minutes measurement is found to be sufficient to achieve almost satisfactory sensitivity and accuracy for elements from Cl to Pb. As the present method allows us to carry out analyses without labor in target preparation, it is expected to be quite helpful in the studies on human exposure to toxic elements. Its availability will more and more increase when the method is combined with the method of simultaneous measurement of in-vacuum and in-air PIXE we have just developed.

Keywords : PIXE, Hair, Standard-free, In-Air, Quantitative analysis, Untreated