

## Engine lubricating oil analysis using in-air PIXE

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### Abstract

Elemental particles contained in automobile exhaust particles stem from the elements in the automobile engine lubricating oil, and may become a nucleus of atmospheric particles. Therefore, investigation of elements in automobile engine lubricating oil became our major consideration relating to chemical speciation of particles in the atmosphere. Detection of elements in automobile engine lubricating oil is one of the challenging subjects in environmental research. Consequently, we tried to elemental quantitative analysis by in-air PIXE for an engine lubricating oil. Experimental result, the determination limit by the analysis method is 50 ppm for light elements (internal standard: Sc 100 ppm). For mass number elements larger than Ar (internal standard: Y100 ppm), the determination limit is 10 ppm. Thus, the problem for the quantitative analysis was able to be clarified.