

Fundamental Studies on Plasma-Jet Spectrometry

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Fundamental Studies on Plasma-Jet Spectrometry*

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Abstract

A plasma-jet generator as a new light source was described and various studies were carried out to obtain the optimum working conditions for emission spectrometry. The variation of spectral line intensity and the distribution of temperature in the plasma flame were examined.

The background intensity was reduced and the sensitivity of the measurement increased by use of a mixture of argon and helium as tangential gas. It became possible to carry out the determination of aluminium, which was rather difficult by flame spectrometry and atomic-absorption spectrometry with the usual combustion flame because a stable oxide was formed in the flame.

In addition, the detection limit was calculated and calibration curves were obtained with good linearity. Effects of acids and organic solvents were investigated, too.

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