

A SAFE, QUICK AND RELIABLE FUSION METHOD FOR SILICON AND FERROSILICON

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The preparation of fused beads for XRF analysis of silicon alloys represents a major problem of sample preparation. The reaction between silicon and platinum quickly leads to major corrosion or even complete destruction of the crucible.

The “new” approach presented by the author last year at DXC2000 opened the way to a new generation of fusion methods that give surprising results. Based on the same approach, a short and efficient chemical treatment has been found to oxidize silicon easily, rapidly and safely, directly in the platinum crucible at low temperature, followed by fusion of the oxides. Using this method, the fusion leads to high quality glass disks, with unusual high sample/flux ratios, which is particularly interesting in the analysis of trace elements.

Features of the new technique are:

- total elimination of crucible corrosion;
- simplicity, ease and speed;
- unusual high sample/flux ratios attainable (up to saturation in glass);
- easy trace analysis.

This method has been developed particularly for silicon and ferrosilicon, but it has also been applied successfully to several other metals. The transformation of silicon alloys into borate glass disks is now accessible as a routine laboratory procedure, and XRF analysis of those alloys should benefit from the high accuracy obtainable with homogeneous specimens.