787/III/71-E

Paper No. 4

ELECTRON MICROSONDE ANALYSIS OF HIGHLY RADIOACTIVE MATERIALS

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The authors describe the equipment and give examples of electron microsonde analyses of construction materials and irradiated fuels.

The equipment used was designed jointly by the CEA and the CAMECA company, by whom it was subsequently built. It is suitable for the analysis of all elements having an atomic number between 5 and 95 in specimens with a maximum activity of 4 Ci at 0.75 MeV. The biological shielding is homogeneous as regards both the microsonde and the cask in which the specimen is transferred from the preparation cell to the micro-analyser.

The preparation of the specimens is particularly thorough, so that contamination of the equipment by radioactive dust is negligible, thus making for comparatively simple maintenance.

The shielded micro-analyser has been in service at the CEA since the beginning of 1971.