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PRESENTATION OF THE CETAMA WORKING GROUP 21

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Measurement quality is crucial for the safety of nuclear facilities and is a primary requirement for the characterization of nuclear materials and for the monitoring of fissile materials.

In the nuclear field, the improvement of analysis and measurement results quality is a major mission of the Commission for the Establishment of Analysis Methods (CETAMA) from the French Atomic Energy Agency (CEA). Suitable scientific and technical developments, in particular preparation and certification of reference materials, are proposed. These materials are used either as analytical standards or as reference samples for interlaboratory comparisons organized by CETAMA.

CETAMA network is organized in 13 thematic working groups. The working group number 21 is dedicated to Electron Probe Micro Analysis (EPMA). Its main mission is to listen to participant needs about EPMA practical issues and to propose tools in order to improve the quality of measurement and analysis results.

An instrumentation notebook have been written collectively with the aim to share our analytical experience and to improve the analytical practices concerning EPMA characterizations. Specific training courses have also been organized, devoted to EPMA uncertainties determination and virtual standard methods. Moreover, several round robin tests on nuclear materials like Pu-doped ceramic analysis, and on more common materials like steel or silicon carbide have led to improvements of users' methodologies and to laboratories' validation practices. Furthermore, to answer to the lack of actinides standard, the fabrication of a dedicated plutonium oxide reference material has been launched. This PuO₂ material will then be certified as a reference material by interlaboratory EPMA comparisons.

The participation in this working group is opened to European industrial, academic and R&D laboratories.