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## **BOOK OF ABSTRACTS**

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## **Measurement Uncertainty Evaluation of the WDXRF and EDXRF Techniques in the Chemical Characterization of Aluminum used in Nuclear Fuel of Type MTR**

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The fuel of type MTR:  $U_3Si_2$ -Al dispersion by Nuclear and Energy Research Institute (IPEN/SP, Brazil) in nuclear reactor IEA-R1m is used. Its production by the mixture of uranium silicide powder ( $U_3Si_2$ ) with aluminum metallic (Al) in predetermined proportions is realized. The quality control of  $U_3Si_2$  as well as the Al powder is important since ensures higher efficiency of the fuel element. In the aluminum powder should be checked the impurities levels such as B, Cd, Co, Cu, Fe, Si, Mn, Zn and others, and total aluminum. In this paper was evaluated the performance of WDXRF and EDXRF spectrometers, using the methods of calibration curve with certified reference materials and instrumental sensitivity curve, observing the legal requirements of NBR ISO 17025. The results of both WDRXF and EDXRF showed that precision, accuracy and limit of quantification were statistically suitable for evaluated methods, however, WDXRF technique was more appropriate for the method of instrumental sensitivity curve because can be determined a great impurities number.

*\* Poster not presented at EXRS 2010*