Short report on EUROMET IR project number 721 : Activity measurements and gamma emission intensities determination in the decay of ^{65}Zn

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Over the last twenty years, a number of laboratories have participated to the *Système International de Référence* (SIR – BIPM) and it appeared that the mass activity of ^{65}Zn determined by the gamma-ray spectrometry was less by about 2 % than the one determined by using 4πβ-γ coincidence counting.

An international exercise EUROMET, action 721, was organized with the objective of improving the knowledge of decay data in the ^{65}Zn disintegration. Nine laboratories (CMI, IFIN, IRMM, IRD-LNMRI, KRISS, NMIJ, NPL, PTB and LNE-LNHB) participated, sending results for the activity measurement and the 1115 keV gamma emission intensity. For the activity measurement, the participants used the 4πβ-γ coincidence method mainly, but two participants have used an ionisation chamber and the Liquid Scintillation Counting method respectively. A CEA report will be published[1] and it will describe the methods used, the investigation about the influence of half-live values and the final results obtained by the participants. The uncertainty budgets were reported using the rules express in "Guide to expression of uncertainty in measurements.

From the new gamma emission intensities measured in this exercise and, taking into account previous published values, the intensity of the 1115-keV gamma emission has been determined being equal to: 50.22 (11) %. This new value must lead to derivate activity values higher than those previously obtained, reducing the difference, with other techniques of measurement, to 1%. Moreover, the uncertainty on the emission intensity value has been divided by a factor of two. A summary report of the decay data will be presented at ICRM2005 conference (**Authors :** M.-M. Bé and all the participants to the Euromet action 721: M.-N. Amiot, C. Bobin, M.-C. Lépy, J. Plagnard, J.M. Lee, K.B. Lee, T.S. Park, A. Luca, M. Sahagia, A.-M. Razdolescu, L. Grigorescu, Y. Sato, Y. Hino, K. Kossert, R. Klein, M.K.H. Schneider, H. Schrader, P. Dryak, J. Sochorovà, P. Kovar, P. Auerbach, M. Havelka, T. Altzitzoglou, A. Iwahara, M.A.L. da Silva, J.U. Delgado, C.J. da Silva, L. Johansson, S. Collins, A. Stroak.)

[1] The complete report giving all measurement data has been published as a CEA-report: **CEA-R-6081, 2005**