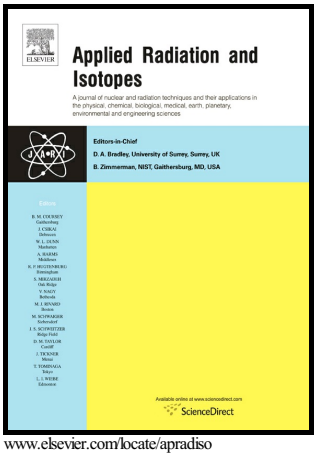

www.elsevier.com/locate/apradiso

Results of the CCRI(II)-S12.H-3 supplementary comparison: Comparison of methods for the calculation of the activity and standard uncertainty of a tritiated-water source measured using the LSC-TDCR method

Philippe Cassette, Timotheos Altzitzoglou, Andrei Antohe, Mario Rossi, Arzu Arinc, Marco Capogni, Raphael Galea, Arunas Gudelis, Karsten Kossert, K.B. Lee, Juncheng Liang, Youcef Nedjadi, Pilar Oropesa Verdecia, Tanya Shilnikova, Winifred van Wyngaardt, Tomasz Ziemek, Brian Zimmerman

PII: S0969-8043(17)30419-0
DOI: http://dx.doi.org/10.1016/j.apradiso.2017.07.007
Reference: ARI7959

To appear in: *Applied Radiation and Isotopes*

Received date: 20 March 2017
Revised date: 4 July 2017
Accepted date: 5 July 2017

Cite this article as: Philippe Cassette, Timotheos Altzitzoglou, Andrei Antohe, Mario Rossi, Arzu Arinc, Marco Capogni, Raphael Galea, Arunas Gudelis Karsten Kossert, K.B. Lee, Juncheng Liang, Youcef Nedjadi, Pilar Oropesa Verdecia, Tanya Shilnikova, Winifred van Wyngaardt, Tomasz Ziemek and Brian Zimmerman, Results of the CCRI(II)-S12.H-3 supplementary comparison Comparison of methods for the calculation of the activity and standard uncertainty of a tritiated-water source measured using the LSC-TDCR method *Applied Radiation and Isotopes* http://dx.doi.org/10.1016/j.apradiso.2017.07.007

Results of the CCRI(II)-S12.H-3 supplementary comparison: Comparison of methods for the calculation of the activity and standard uncertainty of a tritiated-water source measured using the LSC-TDCR method

Philippe Cassette[1*], Timotheos Altzitzoglou[2], Andrei Antohe[3], Mario Rossi[4], Arzu Arinc[5], Marco Capogni[6], Raphael Galea[7], Arunas Gudelis[8], Karsten Kossert[9], K.B. Lee[10], Juncheng Liang[11], Youcef Nedjadi[12], Pilar Oropesa Verdecia[13], Tanya Shilnikova[14], Winifred van Wyngaardt[15], Tomasz Ziemek[16], Brian Zimmerman[17]

[1]*CEA, LIST, Laboratoire National Henri Becquerel, LNE-LNHB, CEA-Saclay, 91191 Gif sur Yvette Cedex, France.*
[2]*European Commission, Joint Research Centre, (JRC), Directorate for Nuclear Safety and Security, Retieseweg 111, B-2440 Geel, Belgium*
[3]*Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, IFIN-HH, Magurele, RO 0-77125, Romania*
[4]*Laboratorio de Metrología de Radioisótopos, CNEA, Argentina*
[5]*National Physical Laboratory, NPL, Queens Road, Teddington, Middlesex TW11 0LW, UK*
[6]*ENEA, National Institute of Ionizing Radiation Metrology, INMRI, Italy*
[7]*National Research Council of Canada (NRC), 1200 Montreal Road, Ottawa, ON, Canada K1A0R6*
[8]*Ionizing Radiation Metrology Laboratory, Center for Physical Sciences and Technology, FTMC, Savanoriu Ave. 231, LT-02300 Vilnius, Lithuania*
[9]*Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany*
[10]*Korea Research Institute of Standards and Science, Yuseong, Daejeon 305-340, Republic of Korea*
[11]*Division of Ionizing Radiation Metrology, National Institute of Metrology, Beijing 100029, China*
[12]*Institut de Radiophysique, IRA-METAS, Lausanne, Switzerland*
[13]*Centro de Isótopos (CENTIS). Guanabacoa, La Habana 11100, Cuba*
[14]*D.I. Mendeleyev Institute for Metrology (VNIIM), Russia*
[15]*Australian Nuclear Science and Technology Organisation, ANSTO, New Illawarra Road, Lucas Heights NSW 2234, Australia*
[16]*National Centre for Nuclear Research Radioisotope Centre POLATOM (NCBJ RC POLATOM), Andrzeja Sołtana 7, 05-400 Otwock, Poland*
[17]*Physical Measurement Laboratory, National Institute of Standards and Technology (NIST), Gaithersburg, MD USA*

**Corresponding author philippe.cassette@cea.fr*

Abstract

A comparison of calculations of the activity of a ^3H_2O liquid scintillation source using the same experimental data set collected at the LNE-LNHB with a triple-to-double coincidence ratio (TDCR) counter was completed. A total of 17 laboratories calculated the activity and standard uncertainty of the LS source using the files with experimental data provided by the LNE-LNHB. The results as well as relevant information on the computation techniques are presented and analysed in this paper. All results are compatible, even if there is a significant dispersion between the reported uncertainties. An output of this comparison is the estimation