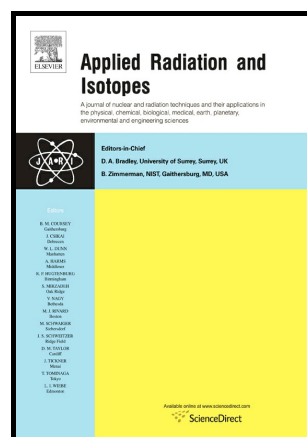


# Author's Accepted Manuscript

## CALCULATION SPREADSHEET FOR UNCERTAINTY ESTIMATION OF MEASUREMENT RESULTS IN GAMMA-RAY SPECTROMETRY AND ITS VALIDATION FOR QUALITY ASSURANCE PURPOSE

Alessia Ceccatelli, Ashild Dybdal, Ales Fajgelj,  
Aurelien Pitois



[www.elsevier.com/locate/apradiso](http://www.elsevier.com/locate/apradiso)

PII: S0969-8043(16)30420-1  
DOI: <http://dx.doi.org/10.1016/j.apradiso.2017.03.002>  
Reference: ARI7819

To appear in: *Applied Radiation and Isotopes*

Received date: 27 July 2016  
Revised date: 20 December 2016  
Accepted date: 2 March 2017

Cite this article as: Alessia Ceccatelli, Ashild Dybdal, Ales Fajgelj and Aurelien Pitois, CALCULATION SPREADSHEET FOR UNCERTAINTY ESTIMATION OF MEASUREMENT RESULTS IN GAMMA-RAY SPECTROMETRY AND ITS VALIDATION FOR QUALITY ASSURANCE PURPOSE, *Applied Radiation and Isotopes* <http://dx.doi.org/10.1016/j.apradiso.2017.03.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# CALCULATION SPREADSHEET FOR UNCERTAINTY ESTIMATION OF MEASUREMENT RESULTS IN GAMMA-RAY SPECTROMETRY AND ITS VALIDATION FOR QUALITY ASSURANCE PURPOSE

Alessia Ceccatelli<sup>a\*</sup>, Ashild Dybdal<sup>a</sup>, Ales Fajgelj<sup>b</sup>, Aurelien Pitois<sup>a</sup>

<sup>a</sup>*Terrestrial Environment Laboratory, IAEA Environment Laboratories, Department of Nuclear Sciences and Applications, International Atomic Energy Agency, Vienna International Centre, PO Box 100, 1400 Vienna, Austria*

<sup>b</sup>*Office of the Deputy Director General, Department of Nuclear Sciences and Applications, International Atomic Energy Agency, Vienna International Centre, PO Box 100, 1400 Vienna, Austria*

\*Corresponding author. Present postal address: Via Bussana 103, 00054 Fregene (Rome), Italy. alessia.ceccatelli@gmail.com

## Abstract

An Excel calculation spreadsheet has been developed to estimate the uncertainty of measurement results in  $\gamma$ -ray spectrometry. It considers all relevant uncertainty components and calculates the combined standard uncertainty of the measurement result. The calculation spreadsheet has been validated using two independent open access software and is available for download free of charge at:

[https://nucleus.iaea.org/rpst/ReferenceProducts/Analytical\\_Methods/index.htm](https://nucleus.iaea.org/rpst/ReferenceProducts/Analytical_Methods/index.htm).

It provides a simple and easy-to-use template for estimating the uncertainty of  $\gamma$ -ray spectrometry measurement results and supports the radioanalytical laboratories seeking accreditation for their measurements using  $\gamma$ -ray spectrometry.

*Keywords: uncertainty estimation;  $\gamma$ -ray spectrometry; validation; quality assurance.*

## 1. Introduction

Download English Version:

<https://daneshyari.com/en/article/5497612>

Download Persian Version:

<https://daneshyari.com/article/5497612>

[Daneshyari.com](https://daneshyari.com)