

Corrigendum

Corrigendum: The k_0 -INRIM software: a tool to compile uncertainty budgets in neutron activation analysis based on k_0 -standardisation (*Meas. Sci. Technol.* 31 017002)

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1. Introduction

This corrigendum addresses a mistake spotted in our original manuscript [1]. In particular, a typing error was identified in the reported model equation that k_0 -INRIM software implements to compute the analyte mass fraction, w_a , via the k_0 -standardisation method.

2. Mistakes

The correctly reported measurement model is displayed as follows and replaces equation (1) in the original paper:

$$w_a = \frac{\lambda \frac{(n_p/COI)(t_c/t_l)e^{-\mu(1-t_l/t_c)}}{(1-e^{-\lambda t_l})(1-e^{-\lambda t_c})} \Big|_a}{\lambda \frac{(n_p/COI)(t_c/t_l)e^{-\mu(1-t_l/t_c)}}{(1-e^{-\lambda t_l})(1-e^{-\lambda t_c})} \Big|_m} e^{(\lambda_a - \lambda_m)t_{dm} + \lambda_a \Delta t_d} \times \frac{k_{0\text{Au}}(m)}{k_{0\text{Au}}(a)} \frac{G_{th\ m} + \frac{G_{e\ m}}{f} \left(\frac{Q_{0\ m} - 0.429}{E_{r\ m}^\alpha} + \frac{0.429}{0.55^\alpha(1+2\alpha)} \right)}{G_{th\ a} + \frac{G_{e\ a}}{f} \left(\frac{Q_{0\ a} - 0.429}{E_{r\ a}^\alpha} + \frac{0.429}{0.55^\alpha(1+2\alpha)} \right)} \times e^{\sum_{i=1}^h a_i(E_{p\ m}^{2-i} - E_{p\ a}^{2-i})} \frac{(1 - \delta \varepsilon_{r\ m} \Delta d_m)}{(1 - \delta \varepsilon_{r\ a} \Delta d_a)} \frac{m_{std}}{m_{sm}} w_m. \quad (1)$$

In detail, the $2 - i$ exponents within the summation are here suitably placed above the monitor and analyte energies, $E_{p\ m}$

and $E_{p\ a}$, respectively, while in the original paper it was placed just outside the parenthesis $((E_{p\ m} - E_{p\ a})^{2-i})$. Accordingly, the same correction also applies in the bullet points list, after equation (1), where symbols are explained. Thus, the text of the sixteenth bullet point becomes ' a_i the h parameters of the model adopted to describe the full-energy γ -peak detection efficiency at the counting position, $e^{\sum_{i=1}^h a_i(E_{p\ m}^{2-i} - E_{p\ a}^{2-i})}$, with $h = 4, 5$ or 6 ' instead of ' a_i the h parameters of the model adopted to describe the full-energy γ -peak detection efficiency at the counting position, $e^{\sum_{i=1}^h a_i(E_{p\ m} - E_{p\ a})^{2-i}}$, with $h = 4, 5$ or 6 '.

3. Remarks

The original equation (1) was verbatim reported also in the k_0 -INRIM user's manual; consequently, the document will be soon updated to version 1.01 in order to be consistent with the corrected published paper. Users might easily check the number version of their downloaded manual, which is reported in the header of the first page.

It is worth stressing that the typing error was limited to the paper (and manual); the formula implemented in the original version of the software was not affected by it, as well as the validation performed on the software itself and the conclusions reported in the original paper.

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Reference

- [1] D'Agostino G, Di Luzio M and Oddone M 2020 The k_0 -INRIM software: a tool to compile uncertainty budgets in neutron activation analysis based on k_0 -standardisation *Meas. Sci. Technol.* **31** 017002