



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_27243
Title of the Manuscript:	Effective atomic numbers to some alloys at 662 kev by back scattering technique
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	<p>Line 3- When we read "back scattering", we must read "backscattering".</p> <p>Lines 107 -109- The author or authors mention that "These values are the effective atomic number of alloys under study. The effective atomic numbers of these samples are also evaluated from known elemental concentration of the constituent elements using Eq. 2.". No equation it was found on the manuscript. If we have an equation 2 what is the equation 1? He/she or they need to clarify the sentence and explain which model was used to evaluate the effective atomic numbers.</p>	<p>Line 3: 'back scattering' has been modified to 'backscattering'.</p> <p>Lines 107-109: Sentence has been modified and the reference of Eq 2 has been eliminated. The reference of our previous work (Sharma R et al., 2012) has been introduced in the revised manuscript, which clearly described the theoretical methodology and its validity.</p>
<u>Minor</u> REVISION comments	<p>Line 7- When we read "In Gamma backscattering technique there is no direct contact with the...", we don't need to write the word gamma with caps lock. In the line 6 the word gamma was written with small caps.</p> <p>Line 11- When we read "662KeV" it is important to have a word space between "662" and "keV". It is not necessary to mention at the abstract the atomic number of Pb, Zn and Sn because is redundant. Only the Pb as an atomic number of 82, only the Zn as an atomic number of 30 and only Sn as an atomic number of 50.</p> <p>Line 14- When we read "76 mmNaI(Tl) scintillator detector", we must read "76 mm NaI(Tl) scintillator detector".</p> <p>Line 19- When we read "Back Scattering" we must read "Backscatter or Backscattering or back-scattered". When we read "Effective Atomic number", we must read "Effective Atomic Number", starting the word "number" with Caps lock.</p>	<p>All modifications (Line No. 7, 11, 14, 19, 40, 45, 55 and 56) have been made in the revised manuscript as suggested by the reviewer.</p>



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	<p>Line 40 – When we read “..available and easy to prepare their alloy in the laboratory..”, we must read “available and easy to prepare their alloys in the laboratory”, with the word “alloy” plural (alloys).</p> <p>Line 45- The melting points of Zn, Sn and Pb pointed by the Royal Society of Chemistry are 419.527°C (instead the mentioned 419°C for Zn), 231.928°C (instead the mentioned 231°C for Sn) and 327.462°C (instead the mentioned 327°C for Pb), respectively. If the author or authors want to have an approximation to the unity of the metals melting points must be 420°C for Zn, 232°C for Sn and 327°C for Pb. A scientific reference is needed for the melting points.</p> <p>Line 55 – When we read “for 600sec”, we must read “for 600 sec”, with a space word between “600” and the abbreviation “sec”.</p> <p>Line 56- When we read “back scattering of gamma rays”, we must read “backscattering of gamma rays”.</p> <p>Lines 57 and 58- When the author or authors mention the calibration sources they need to mention at least on reference for the presented numbers. For example, they mention the calibration source of ⁵⁷Co as emitting a radiation of 122 keV, but Enger et al. (2012) (Exploring ⁵⁷Co as a new isotope for brachytherapy applications) mention for the ⁵⁷Co decays by electron capture to the stable ⁵⁷Fe with emission of 136 and 122 keV photons. This mean that the mentioned energies for ⁵⁷Co, ¹³³Ba as 81 keV, 302 keV and 356 keV, ¹³⁷Cs (662 keV), ²²Na (511 keV) and ⁶⁰Co (1173 keV & 1332 keV) need references. Another example that justifies the importance of the references is the fact that the most stable barium isotope, ¹³³Ba, emits a whole range of gammas, some which can be readily identified with a sodium iodide detector, and many that require higher resolution to see.</p>	<p>Reference sources were well known radioactive sources and each source has numerous applications, so citing a reference for other applications may divert the importance of present work. Hence, this modification has not been included in the modified manuscript.</p>
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	<p>Line 62 – When we read “the sources for the time of 600s, so”, we must read “the sources for the time of 600s, so”. The author or authors should adopt, in whole the work the same time unity symbol (sec or s). If they want to adopt the symbol (s for second), they must change the unit symbol of line 15 (600 sec) for (600 s).</p> <p>Line 66- When we read “600sec were analyzed to measure” we must read “ 600 s were analysed”. It is proposed the use of the symbol “s” for second instead of “sec” because the symbol “s” are more used then the abbreviation “sec”.</p> <p>Line 75 – It is need a space word between the word peak and the words (with sample), instead of “peak(with sample)”.</p> <p>Line 89- When we read “Fig.2” we must read “Fig. 2 .” with a word space between the abbreviation Fig. and the number 2. The space word between the number 2 and the dot must be removed saying this mention as “Fig. 2.”.</p> <p>Line 129- The reference is an electronic source. In this case it is necessary to mention the accessed date (month, year).</p> <p>Line 148- The abbreviation “Int. j. eng. sci. invention.”, must be writhed as “Int. J. Eng. Sci. Invention.”. It is also important to review the rules for scientific references that start on line 126.</p>	<p>As suggested by the reviewer, modifications have been made (in Line No. 62, 66, 75, 89, 129, 148 and 158)</p>
<p><u>Optional/General</u> comments</p>	<p>Line 158- The SI unit symbol of gram is g. Gram can be also abbreviated as gm, but is less usual. It is proposed to change gm to g.</p>	<p>We are very much thankful to the Reviewer for deeply studying the manuscript and helping us to make it more precise and informative.</p>