



SDI Review Form 1.6

Journal Name:	<u>International Research Journal of Pure and Applied Chemistry</u>
Manuscript Number:	Ms_IRJPAC_20775
Title of the Manuscript:	Preparation of ternary (Ni₃Pb₂S₂) thin films by chemical bath deposition method
Type of the 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.

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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)
Compulsory REVISION comments	Authors should define the mechanisms for the formation to ternary without use of complexing agent. Experimental procedure is very poor. In the line 39 to include figure number. To corroborate that ternary $\text{Ni}_3\text{Pb}_2\text{S}_2$ was obtaining, it is necessary to include elemental analysis by EDX of the thin film including the atomic% values, x-ray diffraction pattern for phase formation and images of scanning electron microscopy in the surface and cross section to determine the homogeneity and thickness. To include pictures of the thin films on substrate and Transmittance %.	[1]Re-write experimental procedure. The films were deposited on the microscope glass slide from an acidic solution (pH=1.5) using nickel (II) sulfate, lead (II) nitrate and sodium thiosulfate. The glass slide cleaning process was discussed elsewhere [17]. All the chemicals were prepared in deionized water with a resistivity of 18.2 MΩcm. 20 mL of 0.1 M sodium thiosulfate was placed into separate beakers which contained 20 mL of 0.1 M of nickel (II) sulfate and 20 mL of 0.1 M lead (II) nitrate, respectively. Then, the components of a mixture were physically mixed together under continuous stirring. Lastly, the glass slide was suspended vertically in the solution with the aid of a beaker cover. Thin films were grown on the glass slide in the bath temperature of 70 °C. After a deposition time of 60 minutes, the sample was taken out and dried in constant temperature oven at 80 °C for 8 hours. [2] Briefly explain the mechanism for the formation of films. $\text{Ni}_3\text{Pb}_2\text{S}_2$ thin films were deposited on microscope glass slide using chemical bath deposition method. In this experiment, nickel (II) sulfate, lead (II) nitrate and sodium thiosulfate were the sources of Ni^{2+}, Pb^{2+} and S^{2-} ions, respectively. The chemical bath deposition process is a slow process. The



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		formation of a solid phase from a solution involves two steps, namely nucleation and particle growth. Under the suitable process conditions, nucleation centers took place on the substrate. Here, Pb^{2+}, Ni^{2+} and S^{2-} ions combine to grow up to a certain thickness of the films. [3] Several small grains are observed to agglomerate and eventually produce a few bigger grains as shown in figure 1 [4] In this study, an investigation of the properties of chemical bath deposited thin films in the absence of complexing agent was reported. The obtained films were characterized using atomic force microscopy and UV-Visible spectrophotometer. Here, I insert the transmittance spectrum as suggested. Of course, I can obtain results from EDAX, XRD, SEM in my future research activity.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		