



**SDI Review Form 1.6**

**PART 1:**

Journal Name:	<b><u>American Chemical Science Journal</u></b>
Manuscript Number:	<b>2013 ACSj 4343</b>
Title of the Manuscript:	<b>Thermodynamics of the solvation of lead nitrate in mixed DMF-H<sub>2</sub>O solvents at 301.15 K.</b>
Type of the Article	<b>Research Paper</b>

**General guideline for Peer Review process is available in this link:**

**(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)**

- This form has total 7 parts. Kindly note that you should use all the parts of this review form.



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**PART 2: Review Comments**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(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)</i>
<b>Compulsory</b> REVISION comments	<p>-This paper is important because it documents the Gibbs free energy of lead nitrate in a mixed solvent. It would serve as an important guide to scientists and readers of this journal who are trying to understand the molecular underpinnings of hydration. With this view in mind I would suggest the following compulsory revisions.</p> <p>-The author evaluates the hydration free energy of a proton as -1523 KJ/mol , this is about -360 kcal/mol. However the hydration free energy of a proton is well documented to be within -252 to -263 kcal/mol (Tawa, Topol, Burt, Caldwell, Rashin; JCP, Vol 109(1998), No12, 4852) . This in my view is a grave error which seriously undermines this work. Please clarify /resolve this.</p> <p>-In Fig 1 there are 6 points in the interval spanning 0 to 0.5 mole fraction (xs) of DMF and only 1 in the interval spanning 0.5 to 1. Please include results for at least 2 more data points with xs between 0.5-1. This will improve credibility of the U-shape</p> <p>-In the introduction the author states that his motivation for studying solvation of lead nitrate in a mixed solvent stems from the importance ions is biology. The author particularly mentions the example of how electrical signals are transferred across a neuron by movement of ions across the neuronal cell membrane. Note that these ions are Sodium and Potassium. What insight does the present study offer for the problem of ion transfer? If no</p>	



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	insight is offered than I suggest revising the motivation for the study. The readership of this journal and the scientific community at large will greatly benefit if the author places this study in context of other similar works, instead of forcing a biological motivation.	
<b>Minor</b> REVISION comments	Please estimate and quote the error margin of your data	
<b>Optional/General</b> comments	General Comments: There are lots of small typos, spelling mistakes, bad grammar. Please correct these in the next draft	

**Reviewer Details:**

Name:	<b>Safir Merchant</b>
Department, University & Country	<b>Portland Technology Development Group, Intel Corporation, USA</b>