

Review Form 3

Journal Name:	Chemical Science International Journal
Manuscript Number:	Ms_CSIJ_123980
Title of the Manuscript:	The Interaction of Nickel (II) ion with Ethylene Diamine (en) Chelate using Ethaline (ionic liquid) as Solvent
Type of the Article	Research article

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	The complexity of the interactions between nickel (II) ions and ethylene diamine chelates utilising ether, a novel ionic liquid solvent, is explored in this publication, which is quite important. The development of novel materials and catalysts may be impacted by this research, which could improve our knowledge of metal-ligand interactions in unconventional solvents. Coordination chemistry combined with novel solvents makes this manuscript very interesting to me as it opens up opportunities for effective and sustainable chemical processes.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes, the title is suitable.	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	Yes, but there are minors to correct and maybe add some information. 1. Between spectrophotometric measurements and optical methods, one should be specified. Give both names of the methods. line 12 and 19. 2. Line 20 "comparable to the literature" What does the literature say, what is the specification exactly?	
Are subsections and structure of the manuscript appropriate?	Yes, the manuscript's subsections and structure are suitable because they logically organize the content, create a clear narrative, and aid in reader comprehension. Check that each part flows well and adds to the overall objective of the manuscript.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	This work displays scientific robustness by adopting a well-defined experimental approach to explore the interaction between nickel (II) ions and ethylene diamine in the presence of ethaline as a solvent. The introduction of ethaline, a specialized ionic liquid, provides a new dimension to the research, potentially yielding significant insights into the chelation process. The experimental design, results, and discussions are described in enough depth to assure technical soundness and reproducibility.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. :	The references of the manuscript are insufficient in some sections. Below is a list of few suggestions (can be useful): (Soshnikov <i>et al.</i> 2023a); (Soshnikov <i>et al.</i> 2023b); (Agieienko and Buchner 2022); (Yuan <i>et al.</i> 2021); (Fang, Bresser and Passerini 2022); (Yeoh, Armer and Lowe 2018); (Zhang 2017). You can read on these articles and take the ones more preferable to you. These are particularly for introduction, you can still work on the other parts/sections of the manuscript. 1. Soshnikov, I., Semikolenova, N., Bryliakov, K., Antonov, A. and Talsi, E. 2023a. The Nature and Role of the Nickel Species in the Ni (II) α -Diimine-based Ethylene Polymerization Catalyst Systems (A Review). <i>Russian Journal of General Chemistry</i> , 93 (Suppl 1): S317-S326. 2. Soshnikov, I. E., Semikolenova, N. V., Bryliakova, A. A., Antonov, A. A., Bryliakov, K. P. and Talsi, E. P. 2023b. New Ni (II)-Ni (II) Dinuclear Complex, a Resting State of the (α -diimine) NiBr ₂ /AlMe ₃ Catalyst System for Ethylene Polymerization. <i>Catalysts</i> , 13 (2): 333. 3. Yuan, S., Duan, X., Liu, J., Ye, Y., Lv, F., Liu, T., Wang, Q. and Zhang, X. 2021. Recent progress on transition metal oxides as advanced materials for energy conversion and storage. <i>Energy Storage Materials</i> , 42: 317-369. 4. Fang, S., Bresser, D. and Passerini, S. 2022. Transition metal oxide anodes for electrochemical energy storage in lithium and sodium ion batteries. <i>Transition Metal Oxides for Electrochemical Energy Storage</i> , Article ID: 55-99. 5. Yeoh, J. S., Armer, C. F. and Lowe, A. 2018. Transition metal oxalates as energy storage materials. A review. <i>Materials today energy</i> , 9: 198-222.	

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	<p>6. Zhang, Y. 2017. On study of new progress and application of coordination chemistry in chemistry and chemical industry in recent years. In: <i>Proceedings of IOP Conference Series: Earth and Environmental Science</i>. IOP Publishing, 012020.</p> <p>7. Agieienko, V. and Buchner, R. 2022. Is ethaline a deep eutectic solvent? <i>Physical Chemistry Chemical Physics</i>, 24 (9): 5265-5268.</p> <p>More statements to be cited (from Ionic liquid section)</p> <p>Line 94-95 Please cite this statement, "The use of quaternary ammonium salts particularly pyridinium and imidazolium salts....."</p> <p>Line 98-99 "Ionic Liquids have clearly been reported to be green solvents most notably for their low vapour pressure compared to molecular alternatives." Have a better citation for this assertion because not every ionic liquid is green. But, yes ethaline does have green characteristics since is made of natural compounds.</p> <p>Line 131-133 "... nevertheless also supply routes towards new inorganic particulate with features that cannot or hardly be produced by applying traditional processes." Please cite this statement.</p>	
<p><u>Minor</u> REVISION comments Is the language/English quality of the article suitable for scholarly communications?</p>	<p>Grammar and punctuation can be improved. English editor would be more beneficial in this area.</p> <ol style="list-style-type: none"> 1. For example, in the introduction, 1st line, indicated as line 27, "The transition elements are classically defined as those which the elements have been partially filled d-or f- subshells." I would suggest the statement should have been phrased as: The transition elements are typically described as those with partially filled d- or f- subshells. 2. Line 31-33. Should have put a comma after the part that says, "<i>point of view</i>" and also a comma after the part that says, "<i>on the whole</i>" 3. A suggestion for line 35-37: I was going to remove "<i>too</i>" the last word on the sentence. Sound general, it's like you are talking to a colleague. 4. Line 69-71 The sentence that starts with "<i>Data</i>" is to long if you can at least break it into two or maybe rewrite it in the other way around. 5. Line 110 "The systems studied so far described can be expressed in terms of the general formula." Where is the study? 6. Line 115 "One of the key advantages of these types of ionic liquids is the ease of manufacture." The statement might not be wrong, but it is dangerous. Ionic liquids are ease to manufacture compared what? What do you this about non-mixtures, e.g., bio-solvents? 7. Line 121-122 Actually, there are five types, including the newly discovered hydrophobic type. 8. Line 149-151 "There are two reports of DESs based on choline chloride and glycerol being used for the purification of biodiesel through the extraction of excess glycerol." Why cited one if there are two? 9. Line 273-279 Please compare with the previous studies if there are. 	
<p><u>Optional/General</u> comments</p>	<p>After carefully reviewing the manuscript, I would like to credit the authors for their diligent research and comprehensive approach to the subject. Their work demonstrates a clear understanding of the topic and contributes valuable insights to the field. I appreciate the opportunity to review this work and look forward to seeing the final publication.</p>	

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PART 2:

	Reviewer's comment	Author's comment <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>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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