# Article information:

Electrodeposition of ternary Sn-Cu-Ni alloys as lead-free solders using deep eutectic solvents - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0013468621016297>

# Article summary:

1. Sn-Cu-Ni alloys were electrodeposited from two types of deep eutectic solvents.

2. The electrodeposition process follows a 3-D instantaneous nucleation mechanism and the alloy coatings showed good corrosion performance and solderability.

3. A stoichiometry of Sn99.29-Cu0.65-Ni0.06 was obtained able to act as Pb-free solder.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Electrodeposition of ternary Sn-Cu-Ni alloys as lead-free solders using deep eutectic solvents” is an informative and well written piece that provides a comprehensive overview of the electrodeposition process for producing lead free solders from deep eutectic solvents (DESs). The article is reliable in its presentation of the research findings, providing evidence for each claim made throughout the text, such as the influence of metallic ions concentration on alloy composition, melting point temperature, solderability characteristics, corrosion performance, etc. The authors also provide detailed descriptions of the experimental methods used in their research, which adds to the trustworthiness and reliability of the article.

However, there are some potential biases present in this article that should be noted. For example, while the authors do mention other lead free solder alternatives such as SnAgCu alloys and SnCu alloys with Ni concentrations between 0 and 1000 ppm, they focus primarily on their own research findings regarding SnCuNi alloys produced through electrodeposition from DESs without exploring any counterarguments or alternative solutions to this method. Additionally, while they do mention possible risks associated with lead free solders such as oxidation resistance and fluidity issues, they do not provide any evidence or further discussion on these topics which could have been beneficial for readers looking for more information on these topics.

In conclusion, this article is overall reliable in its presentation of research findings regarding electrodeposition of ternary SnCuNi alloys as lead free solders using DESs but could benefit from further exploration into alternative solutions or counterarguments to this method as well as more evidence for potential risks associated with lead free solders such as oxidation resistance and fluidity issues.

# Topics for further research:

* Lead free solder alternatives
* Oxidation resistance of lead free solders
* Fluid flow characteristics of lead free solders
* SnAgCu alloys
* SnCu alloys with Ni concentrations
* Deep eutectic solvents (DESs) for electrodeposition

# Report location:

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