# Article information:

Frontiers | Recent advances in transition metal nitrides for hydrogen electrocatalysis in alkaline media: From catalyst design to application
<https://www.frontiersin.org/articles/10.3389/fchem.2022.1073175/full>

# Article summary:

1. Transition metal nitrides (TMNs) have been studied for their potential in hydrogen electrocatalysis in alkaline media.

2. Different design strategies have been used to improve the stability and catalytic performance of TMN catalysts, such as synergistic metal-support interaction, hetero-interfacial engineering, and MXene support.

3. Computational energies are convenient descriptions when designing high-performance catalysts, such as hydrogen binding energy (HBE) and hydroxyl binding energy (OHad).

# 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 “Recent advances in transition metal nitrides for hydrogen electrocatalysis in alkaline media: From catalyst design to application” provides an overview of the current research on transition metal nitrides for hydrogen electrocatalysis in alkaline media. The article is well written and provides a comprehensive overview of the topic, including the mechanism of HER/HOR in alkaline solution, different design strategies used to improve the stability and catalytic performance of TMN catalysts, and computational energies that are convenient descriptions when designing high-performance catalysts.

The article is generally reliable and trustworthy; however, there are some potential biases that should be noted. For example, the article focuses mainly on the advantages of TMNs for hydrogen electrocatalysis without exploring any potential risks or drawbacks associated with their use. Additionally, while the article does mention other materials that can be used for hydrogen electrocatalysis (such as PGM metals), it does not provide an equal comparison between them and TMNs or explore any unexplored counterarguments related to their use. Furthermore, while the article does provide some evidence for its claims (such as DFT results), it could benefit from providing more evidence to support its claims or exploring other sources of evidence that could further strengthen its argument.

In conclusion, this article provides a comprehensive overview of recent advances in transition metal nitrides for hydrogen electrocatalysis in alkaline media; however, it could benefit from exploring potential risks associated with their use and providing more evidence to support its claims.

# Topics for further research:

* Potential risks of transition metal nitrides
* Comparison of transition metal nitrides and PGM metals
* Alternative materials for hydrogen electrocatalysis
* Experimental evidence for hydrogen electrocatalysis
* Computational energies for catalyst design
* Counterarguments related to transition metal nitrides

# Report location:

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