# Article information:

Molecules | Free Full-Text | Nickel-Based Metal-Organic Frameworks as Electrocatalysts for the Oxygen Evolution Reaction (OER)
<https://www.mdpi.com/1420-3049/27/4/1241>

# Article summary:

1. The exploration of earth-abundant electrocatalysts with high performance for the oxygen evolution reaction (OER) is eminently desirable and remains a significant challenge.

2. A composite of the metal-organic framework (MOF) Ni10Co-BTC and the highly conductive carbon material ketjenblack (KB) was obtained from a one-step solvothermal reaction to be used as an electrocatalyst for OER.

3. The Ni10Co-BTC/KB composite and the pristine MOF performed better than commercially available Ni/NiO nanoparticles under the same conditions for the OER.

# 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:

This article provides an overview of research conducted on Nickel-Based Metal-Organic Frameworks as Electrocatalysts for Oxygen Evolution Reaction (OER). The article is well written, providing clear explanations of the research process and results, as well as detailed descriptions of the materials used in the experiment. The authors provide evidence to support their claims, such as Powder X-ray diffraction (PXRD) patterns, Fourier transform infrared (FT-IR) spectra, nitrogen sorption isotherms at 77 K, Brunauer–Emmett–Teller (BET) surface areas and pore volumes, thermogravimetric analyses (TGA), etc., which makes it reliable and trustworthy.

The article does not present any potential biases or one-sided reporting; instead it presents both sides equally by discussing both noble metals such as ruthenium and iridium, together with their oxides RuO2 and IrO2, which are currently used as OER catalysts due to their high performance, but also non-noble metal alternatives such as 3d transition metals like Fe, Ni and Co which are being explored due to their abundance and low cost.

The article does not contain any unsupported claims or missing points of consideration; instead it provides detailed information about each step in the research process including synthesis methods, characterization techniques used to analyze samples, etc., making sure that all relevant points are considered. Furthermore, there is no promotional content or partiality in this article; instead it provides an unbiased overview of current research on Nickel-Based Metal Organic Frameworks for OER applications.

Finally, possible risks associated with using these materials are noted throughout the article; however more research needs to be done in order to fully understand these risks before they can be

# Topics for further research:

* Nickel-Based Metal-Organic Frameworks OER catalysts
* Oxygen Evolution Reaction mechanism
* Non-noble metal OER catalysts
* Powder X-ray diffraction analysis
* Fourier transform infrared spectroscopy
* Thermogravimetric analysis of Nickel-Based Metal-Organic Frameworks

# Report location:

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