# Article information:

高效合成具有优异催化湿空气氧化（CWAO）性能的高分散Ru/官能化CMK-3催化剂 - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0009261422001427>

# Article summary:

1. A novel decamethonium bromide-assisted hydrothermal method was proposed to prepare the DMH-AH catalyst with high dispersion of active metal phases for catalytic wet air oxidation (CWAO) of ammonia.

2. The strategy anchored RuCl62- ions onto the positively charged CMK-3-N support modified by DAT2+, which ensured the high dispersion of Ru species and suppressed the aggregation of Ru nanoparticles during high-temperature treatment.

3. The DMH-AH catalyst showed excellent activity and selectivity in removing ammonia nitrogen compared to the reference catalyst prepared by traditional impregnation method. CWAO is a promising technology for treating ammonia nitrogen-containing wastewater due to its high efficiency, short processing time, small footprint, and low operating cost.

# 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 discusses a new method for synthesizing a high-dispersion Ru/functionalized CMK-3 catalyst for catalytic wet air oxidation (CWAO) of ammonia in wastewater. The article provides a detailed overview of the challenges associated with traditional methods of treating ammonia in wastewater and highlights the advantages of CWAO technology. The article also discusses the importance of catalysts in CWAO and the advantages of using supported noble metal catalysts, particularly Ru-based catalysts.

Overall, the article appears to be well-researched and informative, providing valuable insights into the potential benefits of using Ru-based catalysts in CWAO. However, there are some potential biases and limitations to consider.

One potential bias is that the article focuses exclusively on the advantages of using Ru-based catalysts, without discussing any potential drawbacks or limitations. While it is true that Ru-based catalysts have been shown to be effective in CWAO, it is important to acknowledge that other types of catalysts may also have advantages or disadvantages depending on the specific application.

Another limitation is that the article does not provide much detail on the experimental methods used to synthesize and test the DMH-AH catalyst. While it is mentioned that a decamethonium bromide-assisted hydrothermal method was used, there is little information provided on how this method works or how it compares to other synthesis methods.

Additionally, while the article mentions some potential drawbacks of traditional methods for treating ammonia in wastewater (such as secondary pollution), it does not provide much detail on why these methods are no longer considered viable options. It would be helpful to provide more context on why these methods are no longer used and what specific risks they pose.

Finally, while the article provides some evidence for the effectiveness of Ru-based catalysts in CWAO, there could be more discussion around potential counterarguments or limitations to this approach. For example, are there any concerns around cost or availability of Ru? Are there any environmental risks associated with using these types of catalysts?

Overall, while this article provides valuable insights into a promising new approach for treating ammonia in wastewater, there are some limitations and biases to consider. More research and discussion will be needed to fully understand the potential benefits and drawbacks of using Ru-based catalysts in CWAO.

# Topics for further research:

* Limitations of Ru-based catalysts in CWAO
* Comparison of different synthesis methods for supported noble metal catalysts
* Risks and limitations of traditional methods for treating ammonia in wastewater
* Environmental impact of using Ru-based catalysts in CWAO
* Cost and availability of Ru for catalyst synthesis
* Alternative catalysts for CWAO of ammonia in wastewater

# Report location:

<https://www.fullpicture.app/item/b408d1932d780bdb4dd60ce847c6231f>