# Article information:

The balance of acid, basic and redox sites in Mg/Me-mixed oxides: The effect on catalytic performance in the gas-phase alkylation of m-cresol with methanol - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0021951709004199>

# Article summary:

1. The reactivity of Mg/Me-mixed oxides (Me = Fe, Cr, Al) in m-cresol gas-phase methylation with methanol was studied to find relationships between catalytic performance and surface/bulk features.

2. The presence of extra cations in the MgO framework affects greatly the products obtained in the mentioned catalytic reaction, depending on the possible co-presence of redox capacity.

3. A good catalyst for this kind of reactions needs to reach a proper balance between (i) the generation of adsorbed phenolate, via deprotonation of phenolic –OH groups; (ii) methanol dehydrogenation, to generate the highly reactive electrophilic formaldehyde; (iii) the decomposition of formaldehyde into waste light compounds.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally well written and provides a comprehensive overview of the research conducted on Mg/Me-mixed oxides as catalysts for gas-phase alkylation of m-cresol with methanol. The authors provide detailed information about their experimental methods and results, which makes it easy to follow their reasoning and conclusions.

The article does not appear to be biased or one-sided in its reporting, as it presents both sides equally and objectively. It also does not contain any promotional content or partiality towards any particular viewpoint or opinion.

The article does not appear to have any unsupported claims or missing points of consideration that could affect its trustworthiness and reliability. All claims are supported by evidence from experiments conducted by the authors, and all relevant points are discussed in detail throughout the article.

The only potential issue with this article is that it does not explore any counterarguments or alternative viewpoints that could challenge its conclusions. However, this is understandable given that this is a research paper rather than an opinion piece, so it is not necessary for them to do so in order to maintain its trustworthiness and reliability.

In conclusion, this article appears to be trustworthy and reliable overall due to its comprehensive coverage of all relevant topics related to Mg/Me-mixed oxides as catalysts for gas-phase alkylation of m-cresol with methanol.

# Topics for further research:

* Mg/Me-mixed oxides catalytic activity
* Gas-phase alkylation of m-cresol
* Methanol alkylation reaction mechanism
* Alternative catalysts for gas-phase alkylation
* Kinetic parameters of Mg/Me-mixed oxides catalysts
* Environmental impact of Mg/Me-mixed oxides catalysts

# Report location:

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