# Article information:

Prioritization of habitat construction materials on Mars based on multi-criteria decision-making - ScienceDirect
<https://vpn.lib.xauat.edu.cn/https/webvpn7777772e736369656e63656469726563742e636f6d/science/article/pii/S2352710223000438>

# Article summary:

1. Multi-criteria decision-making (MCDM) is used to review 8 building materials based on 14 criteria for construction on Mars.

2. Geopolymer concrete is the best material for construction on Mars, followed by sintered material and sulfur concrete.

3. Shipping has the highest weighting according to Fuzzy AHP, while sustainability has the lowest weighting.

# 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 a comprehensive overview of the potential building materials for constructing habitats on Mars, using multi-criteria decision-making (MCDM) methods to determine the most suitable mortar for construction under the harsh conditions on Mars. The article is well written and provides a detailed analysis of each material's advantages and disadvantages in terms of availability, shipping, water requirement, technical working conditions, curing time, temperature, total required energy, strength, durability, cosmic radiation shield (density and hydrogen content), additives needed, sustainability, safety and recyclability. The authors have also used Fuzzy AHP to assign a weighting to each criterion in order to make an informed decision about which material is best suited for use in construction on Mars.

The article appears to be reliable and trustworthy as it provides a thorough analysis of all available options with regards to building materials for constructing habitats on Mars. Furthermore, the authors have provided evidence from their research that supports their claims regarding which material is best suited for use in construction on Mars. However, there are some potential biases that should be noted when considering this article's trustworthiness and reliability. For example, the authors may have overlooked certain factors or criteria that could affect their conclusions regarding which material is best suited for use in construction on Mars such as cost or environmental impact. Additionally, they may have been biased towards certain materials due to personal preferences or preconceived notions about what would work best in this situation. Finally, it should also be noted that this article does not provide any counterarguments or explore any possible risks associated with using these materials in construction on Mars which could lead readers to draw inaccurate conclusions about their suitability for use in this context.

# Topics for further research:

* Cost of building materials for Mars habitats
* Environmental impact of building materials for Mars habitats
* Risks associated with using building materials for Mars habitats
* Alternative building materials for Mars habitats
* Life cycle assessment of building materials for Mars habitats
* Radiation shielding properties of building materials for Mars habitats

# Report location:

<https://www.fullpicture.app/item/5bed7f2d2a307de43762d7323285711d>