# Article information:

The potential and mechanism of nonionic polyether surfactants dissolved in CO2 to improve the miscibility of CO2–hydrocarbon systems | Elsevier Enhanced Reader
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# Article summary:

1. The key influencing factors for miscibility of oil–gas systems include the reservoir oil composition, the injected gas type, and the reservoir temperature and pressure conditions.

2. Non-fluorinated polymers, which contain silicon-based groups, polyoxypropylene groups (PO groups), polyoxyethylene groups (EO groups), ester groups, or carbonyl groups, have a good affinity with CO2 due to dipole-quadrupole interactions, Lewis acid–Lewis base interactions (LA–LB interactions), and cooperative hydrogen bonding.

3. Nonionic propoxylated surfactants showed the best miscibility pressure reduction effect in reducing the minimum miscibility pressure (MMP) and FCMP of CO2–crude oil systems.

# 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 “The potential and mechanism of nonionic polyether surfactants dissolved in CO2 to improve the miscibility of CO2–hydrocarbon systems” is an informative piece that provides a comprehensive overview of the potential use of nonionic polyether surfactants as additives to reduce the minimum miscibility pressure (MMP) and FCMP of CO2–crude oil systems. The article is well written and provides a detailed explanation of how these additives work to improve miscibility between CO2 and hydrocarbons. It also discusses various other types of additives that can be used for this purpose, such as cosolvents like alcohols and ketones, as well as low molecular weight polymers compounds containing ester or carbonyl groups.

The article is generally reliable in its content; however there are some areas where it could be improved upon. For example, while it does provide an overview of different types of additives that can be used to reduce MMP/FCMP pressures in CO2-hydrocarbon systems, it does not provide any information on their environmental impact or potential risks associated with their use. Additionally, while it does discuss various studies that have been conducted on these additives in laboratory settings, it does not provide any evidence from field applications or discuss any possible counterarguments or alternative solutions that could be used instead. Furthermore, while it mentions that nonionic propoxylated surfactants show the best results in terms of reducing MMP/FCMP pressures in CO2-hydrocarbon systems, it does not provide any details on why this is so or what makes them more effective than other types of additives discussed in the article.

In conclusion, while this article provides a comprehensive overview on how nonionic polyether surfactants can be used to reduce MMP/FCMP pressures in CO2-hydrocarbon systems, there are some areas where further research could be done to improve its trustworthiness and reliability.

# Topics for further research:

* Environmental impact of nonionic polyether surfactants
* Risks associated with using nonionic polyether surfactants
* Field applications of nonionic polyether surfactants
* Counterarguments to using nonionic polyether surfactants
* Alternative solutions to reduce MMP/FCMP pressures
* Reasons why nonionic propoxylated surfactants are more effective

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