# Article information:

Effects of Bacterial Density on Growth Rate and Characteristics of Microbial-Induced CaCO3 Precipitates: Particle-Scale Experimental Study | Journal of Geotechnical and Geoenvironmental Engineering | Vol 147, No 6
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# Article summary:

1. This study used a microfluidics-based pore-scale model to observe the effect of bacterial density on the growth rate and characteristics of CaCO3 precipitates during MICP processes occurring at the sand particle scale.

2. Results show that the precipitation rate of CaCO3 increases with bacterial density in the range between 0.6×108 and 5.2×108  cells/mL, and that bacterial density also affects both the size and number of CaCO3 crystals produced.

3. Bacterial density should be an important consideration in the design of MICP protocols.

# 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:

This article is generally reliable and trustworthy, as it provides evidence for its claims through experiments conducted using a microfluidics-based pore-scale model to observe the effect of bacterial density on the growth rate and characteristics of CaCO3 precipitates during MICP processes occurring at the sand particle scale. The article does not appear to have any biases or one-sided reporting, as it presents both sides equally by providing evidence for its claims as well as noting possible risks associated with varying bacterial densities in MICP protocols. Furthermore, there are no unsupported claims or missing points of consideration, as all claims are backed up by evidence from experiments conducted in this study. Additionally, there are no unexplored counterarguments or promotional content present in this article, making it a reliable source for information regarding MICP protocols and their effects on CaCO3 precipitation rates and characteristics.

# Topics for further research:

* Microbial-induced calcium carbonate precipitation
* Bacterial density effects on MICP
* Pore-scale modeling of MICP
* Sand particle scale MICP
* Precipitation rate of CaCO3
* Characteristics of CaCO3 precipitates

# Report location:

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