

Accepted Manuscript

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PII: S0009-2509(18)30323-3
DOI: <https://doi.org/10.1016/j.ces.2018.05.026>
Reference: CES 14235

To appear in: *Chemical Engineering Science*

Received Date: 11 February 2018
Revised Date: 18 April 2018
Accepted Date: 15 May 2018

Please cite this article as: P. Wang, H. Ni, C. Wang, R. Wang, Novel mechanical foam breaker based on self-oscillation for promoting the application of foam drilling technology, *Chemical Engineering Science* (2018), doi: <https://doi.org/10.1016/j.ces.2018.05.026>

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Novel mechanical foam breaker based on self-oscillation for promoting the application of foam drilling technology

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Highlights

- ◆ Novel mechanical foam breaker based on self-oscillation is developed in this paper.
- ◆ The defoaming mechanism of the foam breaker is revealed through numerical simulation.
- ◆ The prototype of the mechanical foam breaker is developed.
- ◆ Influence of factors on defoaming percentage are researched by experiments.

Abstract: Defoaming of foam drilling fluid on the ground is the key to its cyclic utilization. This paper proposes a novel mechanical foam breaker based on self-oscillation to promote the application of foam drilling technology. Simulation results showed that the combined effects of the negative pressure, collision, extrusion, and shear generated in the cavity cause the foam to fracture. A prototype was developed, and the effects of the structural parameters, components of the foam

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