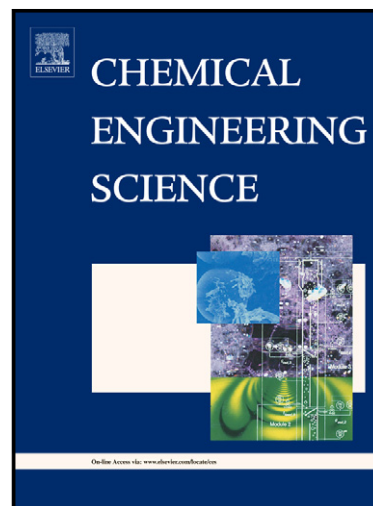


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# The mechanism of bubble generation using a slit elastic tube and an acoustic pressure wave in the gas phase

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## ABSTRACT

A bubble generation method that uses a slit elastic tube and an acoustic pressure wave in the gas phase can produce single bubbles of various sizes. In this study, we experimentally investigated the mechanism of bubble generation in a slit elastic tube. We used high-speed photography to observe the bubble generation process and slit motion in different liquids with different surface tensions. For the small bubble generation process, the results indicated that there was no significant difference in the slit opening time, even when the amplitude of the acoustic pressure wave was changed, and that the radius of the bubble generated was determined by the opening displacement of the slit, which was governed by the surface tension. In addition, the shape oscillation of a bubble due to surface tension was found to promote its detachment from an elastic tube with poor wettability.

**Key Words:** bubble formation, control, elastic tube, and wettability

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