Foam control is an imperative need in biogas plants, as foaming is a major operational problem. In the present study, the effect of oils (rapeseed oil, oleic acid, and octanoic acid) and tributylphosphate on foam reduction and process performance in batch and continuous manure-based biogas reactors was investigated. The compounds were tested in dosages of 0.05%, 0.1% and 0.5% v/v feed. The results showed that rapeseed oil was most efficient to suppress foam at the dosage of 0.05% and 0.1% v/v feed, while octanoic acid was most efficient to suppress foam at dosage of 0.5% v/v feed. Moreover, the addition of rapeseed oil also increased methane yield. In contrast, tributylphosphate, which was very efficient antifoam, was found to be inhibitory to the biogas process. © 2013 Elsevier Ltd.

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