

# THE USE OF DISINTEGRATED FOAM TO ACCELERATE ANAEROBIC DIGESTION OF ACTIVATED SLUDGE

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**Abstract:** Hydrodynamic disintegration of the activated sludge and foam results in organic matter transfer from the solid phase to the liquid phase. Hydrodynamic disintegration caused an increase of COD value in activated sludge and foam of  $220 \text{ mg}\cdot\text{dm}^{-3}$  and  $609 \text{ mg}\cdot\text{dm}^{-3}$  – respectively, besides the degree of disintegration increases to 38% and 47% – respectively – after 30 minutes of disintegration. Hydrodynamic cavitation affects positively the degree of disintegration and rate of biogas production. Also addition of a part of digested sludge containing adapted microorganisms resulted in acceleration of the anaerobic process. Addition of disintegrated foam (20% and 40% of volume) to the fermentation processes resulted in an improvement in biogas production by about 173% and 195% respectively – in comparison to activated sludge without disintegration (raw sludge) and 142% and 161% respectively – in comparison to activated sludge with a part of digested sludge (80% raw sludge + 20% digested sludge).