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A key information for understanding and controlling the anaerobic biogas process is the concentration of Volatile Fatty Acids (VFA). However, access to this information has so far been limited to off-line measurements by manual time and labour consuming methods. We have developed a new technique that has made it possible to monitor VFA on-line in one of the most difficult media: animal slurry or manure. A novel in-situ filtration technique has made it possible to perform microfiltration inside the reactor system. This filter enables sampling from closed reactor systems without large scale pumping and filtering. Using this filtration technique together with commercially available membrane filters we have constructed a VFA sensor system that can perform automatic analysis on animal slurry at a frequency as high as every 15 minutes. The VFA sensor has been tested for a period of more than 60 days with more than 1000 samples on both a fullscale biogas plant and lab-scale reactors. The measuring range covers specific measurements of acetate, propionate, iso-/n-butyrate and iso-/n-valerate from 0.1 to 50 mM (6–3,000 mg).

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