

## Detecting problems at an early stage

Not all process disruptions can be easily identified. Some fermenter problems develop slowly over a long time. There might be several months before the consequences of an event become apparent. Operators therefore must heed even minor changes in the process and identify their causes.

Typical early signs of developing problems:
<ul style="list-style-type: none"><li>▪ Reduction in gas yield while substrate infeed remains constant</li><li>▪ Reduction in methane concentration in gas (&lt; 50 %)</li><li>▪ Increase in hydrogen content (H<sub>2</sub>) in gas</li><li>▪ Increase in hydrogen sulphide content (H<sub>2</sub>S) in gas</li><li>▪ Increase in VOA/TAC value in fermenter</li><li>▪ Reduction in pH in fermenter (normally rather late reaction)</li><li>▪ Foam in the fermenter</li></ul>



If one or more of these early signs appear, we recommend sending a sample to an experienced laboratory or consulting a specialist consultancy firm. In the event of reduced gas yield at constant infeed, immediately increase the amount of substrate in the fermenter even before evaluating the situation further!