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PRELIMINARY TRIAL APPLICATION OF BIOLOGICAL DESULFONATION IN ANAEROBIC DIGESTORS FROM PIG FARMS

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Abstract

This paper describes preliminary tests carried out in treatment plants serving two different pig farms in Northern Italy, in order to assess the feasibility of implementing biological sulphur removal from biogas produced by anaerobic digestion processes. This normally consists of mixture of CH_4, CO_2, and other gases; in the presence of sulphur, H_2S is also formed, which must be removed prior to the gas use in thermal engines, to avoid corrosion phenomena. Sulphur removal in the plants considered is currently achieved by means of chemical filtration, however this adds costs to the process and generates a waste to be disposed of. As a process alternative, biological sulphur removal by means of *Thiobacillus sp.* bacteria can also be obtained. The process, however, requires specific conditions in the gas stream in order to achieve high process efficiency. Biological desulfonation was applied on a trial basis in two biogas production plants, with different layouts, and encouraging results. These confirms the validity of the process, although the maximum foreseen removal efficiencies were not achieved due to structural drawbacks of the tested facilities, that will have to be revamped in order to apply this process with full satisfaction and effectiveness.

Key words: anaerobic digestion, biogas, desulfonation, *Thiobacillus*

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