

Amperometric Gas Sensors in Agricultural Applications

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This presentation will cover the application of amperometric gas sensing technologies to the monitoring and control of ammonia (NH_3) and hydrogen sulfide (H_2S) emissions in confined animal feeding operations (CAFOs). Large CAFOs can house many thousands of animals (e.g., swine or poultry) resulting in large amounts of solid and liquid waste that require management [1]. In addition, the high concentration of animals and their waste products results in high indoor and outdoor concentrations of toxic gases such as NH_3 and H_2S that are a respiratory hazard for CAFO workers and the surrounding community, as well as deleterious to the health of the animals and the productivity of the CAFO [2-5].

We will discuss the application of conventional and new, printed amperometric gas sensor technologies to the problem of H_2S and NH_3 emission control in the CAFO environment [6]. The CAFO environment presents a unique set of challenges for toxic gas sensing. The printed gas sensor will be discussed relative to these challenges. Gas sensing technologies will be discussed in the framework of benefits to productivity and worker safety.

References

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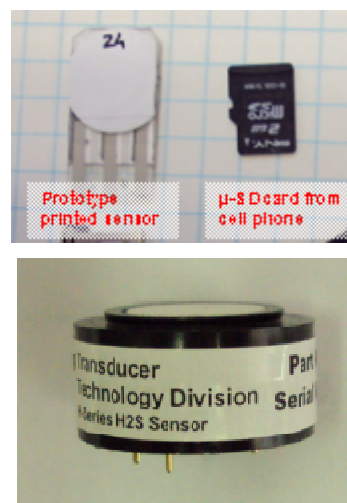


Figure 1. (top) A printed amperometric gas sensor with comparison to a microSD card; (bottom) A conventional amperometric H_2S sensor.