

ABSTRACT OF THESIS

EVALUATION OF THE CYRANOSE 320 ELECTRONIC NOSE FOR ODOR IDENTIFICATION AT DAIRY FARMS

The Cyranose 320 is a direct reading “electronic nose” that may provide a cost-effective alternative to the qualitative scentometer or more costly chemical air sampling methods. Historically, the Cyranose 320 has been used at facilities such as dog food factories, beer breweries and in sewage systems to discern a “good” from a “bad” batch and to detect the presence of compounds that could negatively impact human health.

The Cyranose 320 uses 32 internal polymer sensors that expand and contract according to their individual response to the compound being sampled. The method recommended for calibrating the Cyranose 320 is to group compounds according to their chemical class. The chemical classes used in this project were organic Sulfurs, Nitrogens, Fatty Acids, Phenols/Indoles, Ketones and Alcohols.

The goal of this project was to evaluate the Cyranose 320 for use in identifying and quantifying emissions from dairy and other livestock facilities, particularly around lagoons. A standard operating procedure (SOP) specific to this application was developed for several compounds characteristic of the stock emissions.

Field tests were conducted under a variety of environmental conditions. The overall response by the Cyranose 320 to these less than ideal environmental conditions was poor. The Cyranose 320 still failed to perform as desired for use as a quantitative identification instrument at dairy farms.

Marc Cusanelli
Environmental and Radiological Health Sciences Department
Colorado State University
Fort Collins, CO 80523
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