

Define Minimum Requirements:

Portable Fourier transform infrared spectroscopy (FTIR) multi gas analyzer with battery power and a real time monitor. The unit should have at least a 9 m optical path length gas cell, internal sample pump that allows for closed system sampling, and a gas library containing at least carbon dioxide, methane, nitrous oxide, water vapor, and ammonia.

Specification statement of how equipment will be used:

This equipment will be used to analyze soil greenhouse gas and ammonia emissions in the field. It will be connected to chambers installed in the soil and will provide real time and recorded measurements of these emissions throughout the year for plots in two studies currently being conducted involving different manure application methods on corn and alfalfa crops.

Brand Name or Equal:

Gasmeter Model DX4040 Portable FTIR Multi-component gas analyzer.

Line Item Descriptions:

1. Must be an FTIR equivalent analyzer.
2. Must be portable, therefore battery powered and preferably weigh less than 50 pounds.
3. Must have a sample pump capable of pumping at least 2 L/min.
4. Must be able to measure multiple gases simultaneously.
5. Must have interface that allows user to see real time data and log that data.
6. Must have compatible software and be able to connect data to a PC.
7. Must be sensitive to a ppm range < 100 for methane, nitrous oxide, and carbon monoxide.
8. Must be calibrated for a gas library containing all green house gases and ammonia.
9. Must be able to function during varying daily temperatures 0-40°C.
10. Must come with at least a 12 month warranty.
11. Preferred to include instrument training.
12. Preferred to include minimum maintenance and consumable costs.

Descriptive Literature is needed:

We will require documentation to insure instrument meets our requirements for the type of field application and sampling chamber design we have already implemented.

Training is preferred:

To ensure all technicians and scientists involved have working knowledge of use and maintenance of the instrument.

Commercial Warranty sufficient:

Standard 12 month warranties will suffice for our needs.