

Animal Care Program

Devices and Tools for Ammonia Monitoring

Using monitoring tools to measure ammonia in the barns is now part of the Animal Care Program. The following provides info on different devices available and companies that supply them. There are likely other suppliers or devices; this just provides some examples to start from.



Ammonia test paper: The least expensive and simplest way of measuring ammonia

- » Small strip of paper is moistened with distilled water and exposed to the air for 15 sec
- » Accurate compared to gas tubes, but not precise. The colour changes are associated with 5, 10, 20, 50 and 100 ppm
- » Useful for indicating if ammonia is getting out of range (20 ppm), but not useful for determining the precise level of ammonia in the barn
- » Each roll can take over 75 measurements

Approximate cost: \$130 for a 10-pack of 15-foot rolls or less than \$0.17 per measurement

- » Available to order by phone from Fisher Scientific, 1-800-234-7437, catalogue number FSSPg702692
- » Available online from Micro Essential Lab on amazon.ca: Micro Essential Lab AM-40 Hydrion Ammonia Meter Test Paper Roll, 0 to 100ppm Range, 15' Length
- » Search online for ways to make distilled water at home, or it can be found in the bottled water section of most grocery stores



Short duration detection tubes: Utilizes a pump and a glass tube to measure ammonia levels

- » Ends of the glass tube are broken off and it is placed into a small piston pump
- » Chemicals in the tube react with ammonia in the air to change the colour along the length of the tube
- » Accuracy can vary due to the difficulty in determining exactly where along the tube the colour changes
- » Can purchase tubes to measure other gases as well such as carbon dioxide and carbon monoxide

Approximate cost: \$52 for box of 10 tubes, \$275 for the pump

- » Available from Cole-Parmer, 1-800-363-5900, www.coleparmer.ca
 - RAE Systems gas detection tubes for ammonia, 5 – 100 ppm (item RK-86260-51)
 - RAE systems manual gas detection pump (item RK-86260-00)



Passive dosimeter tubes: Can measure average ammonia concentration over a period of time

- » As with the short duration tubes, the colour changes along the length of the glass tube when exposed to ammonia in the air. Accuracy can vary due to difficulty in determining exactly where the colour change is
- » Takes an average measurement over a period of time, up to 10 hours
- » Does not require the use of a pump
- » Can provide a more representative measurement, as ammonia concentration may change from minute to minute depending on ventilation and fans

Approximate cost: \$54 for 10, single-use tubes.

- » Available from Levitt Safety, 1-888-453-8488, www.store.levitt-safety.com
- Gastec dositube for ammonia, 2.5-1,000 ppm (part number IG3D)



Portable single gas detector: Low cost, low maintenance, gas detector that measures one specific gas and fits in the palm of a hand.

- » Easy calibration
- » Replaceable batteries and sensors
- » Continuous LCD screen shows real-time gas concentrations
- » Datalogging capabilities

Approximate cost: \$500-\$800 (cost varies depending on the specific gases it is configured to measure)

- » Available from Canary Sense, 1-800-561-8187, www.canarysense.ca
- BW Technologies GasAlert Extreme single gas detectors
 - o 0-100ppm ammonia
- » Available from Cole-Parmer, 1-800-363-5900, www.coleparmer.ca
- RAE Systems ToxiRae Pro single gas detector
 - o 0-100ppm ammonia



Fixed gas detection monitors: Installed in the barn to detect multiple gases

- » As with portable monitors, they are capable of data logging and continuous operation
- » Calibration is recommended every 3 to 6 months

Approximate cost: \$1,600 (cost can vary if multiple gases are required)

- » Available from Argus-Hazco, 1-800-361-3201, www.argus-hazco.com
- RKI Instruments M2A (sensor and transmitter in one)
 - o 0-75 ppm ammonia, 0-5,000 ppm carbon dioxide

