



### Project

Dust Evaluation in Equine Facilities  
South Dakota

### Application

Indoor Air Quality

### Scope

The study aimed to illustrate how the Aeroqual Ranger can support dust control measures at horse facilities.



### Equipment and services

Aeroqual Ranger  
PMX

### Client

Swanson Horse Company

### Equipment Partner

Gas Sensing

### Date

August 2024

## Respiratory Health in the Equine Industry

Gas-sensing.com used Aeroqual Ranger to evaluate the impact of arena dust mitigation strategies at the Swanson Horse Company.

Dust, also defined as Particulate Matter (PM), can be generated during horse training and rodeos. It has potential to become a health issue for horse and rider, particularly in indoor arenas. But dust prevention strategies can mitigate the risk.

PM is categorized based on size. PM<sub>10</sub> (particles with a diameter of 10 micrometers or less) and PM<sub>2.5</sub> (particles with a diameter of 2.5 micrometers or less) are most commonly measured, with PM<sub>2.5</sub> being of particular concern due to its ability to penetrate deep into lungs and enter the bloodstream.

The Aeroqual Ranger is able to detect and log PM<sub>2.5</sub> and PM<sub>10</sub> every second. A Ranger, supplied by Gas-Sensing.com, Iowa, was used to test air quality at the Swanson Horse Company indoor arena before and after employing dust mitigation measures.

The first run, without dust controls, showed that after just a few circles by horse and rider the Aeroqual Ranger was reading over 35 ug/m<sup>3</sup> of PM<sub>2.5</sub>. At that level, the horse may be having to work harder to train and breathe. When the fans were turned on and magnesium chloride laid down (an approved dust suppressant), the PM<sub>2.5</sub> level lowered appreciably.

Monitoring and managing PM levels in the horse industry is essential for safeguarding equine and human health. Horses, like humans, are susceptible to respiratory conditions when exposed to high levels of particulate matter.

Strategies to mitigate PM in equine facilities include:

- Implementing effective manure management
- Installing extraction fans in indoor arenas to ensure adequate ventilation
- Employing dust control measures such as water or magnesium chloride to reduce dust production

The Aeroqual Ranger is an ideal tool to demonstrate these strategies are working.

"By implementing these strategies and adopting a proactive approach to PM management, the equine industry can effectively combat particulate matter and create safer, healthier environments."

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