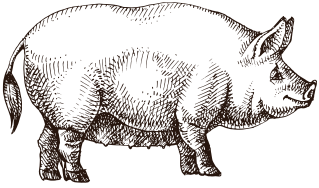


# AIR QUALITY & GAS EXPOSURES



## Gas Sources in Livestock Production

### Manure Storage

Under slatted floor  
Outside lagoon, pit, or tank

### Foaming Manure

If foaming is presented,  
significant methane risk

### Manure Pumping

Under slatted floor  
Outside lagoon, pit, or tank

### Gas-Fired Heaters

Combustion byproducts

### Animal

Exhaled breath

Non-gas hazards include dust and endotoxin exposures and other animal handling risks.

Hydrogen Sulfide (H<sub>2</sub>S)

Paralyzes Respiratory System, Can Be Fatal

Methane (CH<sub>4</sub>, LEL)

Explosion Hazard

Ammonia (NH<sub>3</sub>)

Eye & Lung Irritant

Carbon Monoxide (CO)

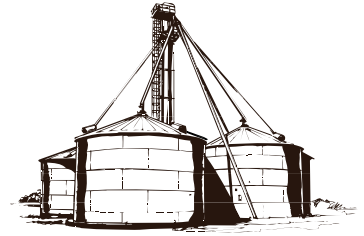
Reduces Blood Oxygen, Can Be Fatal

Carbon Dioxide (CO<sub>2</sub>)

Decline in Mental Acuity

Nitrogen Dioxide (NO<sub>2</sub>)

Can Cause Pulmonary Edema (Fluid in Lungs)



## Gas Sources in Grain Bins

### Inside Bins

Out-of-condition grain  
Gas-fired dryers

### Equipment

Overheated equipment  
Smoldering product

### Silos

Naturally fermenting silage

Non-gas hazards include dust explosions and engulfment in grain.