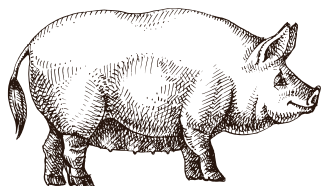


AIR QUALITY & GAS EXPOSURES



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
(H₂S)

Paralyzes
Respiratory
System, Can Be
Fatal

Methane
(CH₄, LEL)

Explosion
Hazard

Ammonia
(NH₃)

Eye & Lung
Irritant

Carbon
Monoxide
(CO)

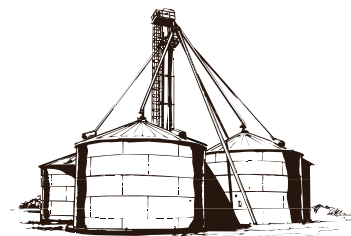
Reduces Blood
Oxygen, Can Be
Fatal

Carbon
Dioxide
(CO₂)

Decline in
Mental Acuity

Nitrogen
Dioxide
(NO₂)

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.