

Gas Hazards in Agriculture

Direct-reading gas monitors can alert farmers to life-threatening concentrations of gases on the farm.

These monitors are relatively inexpensive and easy to use.

Below are guidelines to identify hazards and select sensor types based on potential hazards in your farming operation.

Gas

Health Effects

Low

2-20 ppm:
nausea,
headache,
dizziness

< 0.1%
(1000 ppm):
not harmful

5-20 ppm:
odor, eye
irritation

600-2000 ppm:
muscle
stiffness,
drowsiness,
poor judgement

<9 ppm:
comfortable
living
concentration
(35 ppm = 8-hr
allowable)

Medium

100-300 ppm:
altered breathing,
fluid in lung

< 1%
(10,000 ppm):
no known toxicity

20-50 ppm:
Moderate eye and
upper respiratory
tract irritation

5000 ppm:
8-hr maximum

200 ppm:
headache,
dizziness, nausea
in 2 hours

High

500-700 ppm:
collapse, death

5-15%
(50,000 ppm):
explosive

2500 ppm:
chemical
pneumonitis,
edema,
cyanosis, death

30,000 ppm (3%):
increased pulse
rate, nausea,
mental
impairment

400 ppm:
life threatening in
3 hours

Children, elderly, pregnant women are at risk at lower CO concentrations. The concentrations are relevant only at "sea level."

Livestock Production



Manure Storage

Under slatted floor
Outside lagoon, pit, or tank

Manure Pumping

Under slatted floor
Outside lagoon, pit, or tank

Foaming Manure

If foaming is present,
significant methane risk
(see additional materials)

Pressure Washing

Inside building

Animal

Exhaled breath

Gas-fired Heaters

Combustion byproducts

Grain Bins



Inside Bins

Out-of-condition grain
Gas-fired dryers

Equipment

Overheated equipment
Smoldering product

Sensor Types

H₂S

LEL

NH₃

H₂S

LEL

H₂S

LEL

H₂S

LEL

NH₃

CO₂

CO₂

CO

CO

CO₂

CO