

Gas Monitor Styles and Knowing When to Use Them

What kind of gas monitor do I need?

You know there are areas that are high risk for workers, especially in the construction industry. We're going to tackle them all and give you the information you need to stay safe, but today let's zero in on the gas monitoring requirements for confined spaces.

Let's quickly cover the basics. Any time you enter an area that isn't made for long-term human occupancy, has limited access or egress, or the area has the potential for oxygen deficiency or toxic gases - you are in a confined space. Sewer Plants, Chemical plants, paper mills, refineries, utility passageways, tanks, vaults are just a few places workers can find combustible, toxic, or dangerous atmospheres.

Examples of confined spaces:

- Sewers
- Trenches
- Vats
- Ditches
- Silos
- Tunnels
- Underground Vaults
- Restricted entry/exit
- Cold Storage
- Storage Tanks
- Manholes
- Culverts
- boilers
- Wells

Alright, you get the picture now. So, what the heck are we trying to avoid in confined spaces?

Well, for starters, we need to make sure workers do not enter or dig in a place where they can be overcome by invisible killers unless they are adequately protected. Toxic gases or a shortage of oxygen is serious, and the reality is that a worker may not come out alive. Whether the risk is asphyxiation, fire, or explosion, it's important to regularly and continuously monitor these areas for the presence and concentration of gas. There is a reason why confined spaces are dangerous, and you need to take more than the minimum precautions to be safe.

One of the biggest mistakes that people make is thinking that they can tell if there is a deadly gas present based on a smell. The only way to safely detect a hazardous atmosphere is with a "calibrated direct reading instrument". Some gases have a paralyzing effect on your senses. Imagine making a safety decision that way. Need I say morgue on that subject?

We aren't just talking rural, out of the way areas either. Think about urban areas like San Antonio or Denver for a second. You think your nose is going to pick up on a gas leak in a manhole? NOT! You are likely going to catch a whiff of a dirty water dog long before you have a chance to stop the manhole explosion that happens every so often in the city.

Know the atmospheric conditions of your worksite!

1. **Oxygen content:** The most common cause of death from atmospheric hazards in a confined space is due to asphyxiation from lack of oxygen. It's also important to remember that too much oxygen can also have its own risks, as well.
2. **Flammable gases and vapors:** Here's just a few!
 1. Ammonia (NH₃)
 2. Carbon monoxide (CO)
 3. Chlorine (Cl)
 4. Hydrogen cyanide (HCN)
 5. Hydrogen sulfide (H₂S)
 6. Methane (CH₄)
 7. Nitric oxide (NO)
 8. Sulphur dioxide (SO₂)
3. **Potential toxic air contaminants:** Any unsafe levels of contaminants that could cause illness or injury to the worker's health

The difference in gas monitor styles

Portable: These guys can be designed for single or multiple gases and can be placed right on the worker so that they can be sure they aren't entering a danger zone.

Continuous Monitoring: These devices are used for area monitoring that can continuously check for changes in the presence of gases or oxygen levels. Similar to portable monitors, in that they are lightweight and can run off batteries.

Fixed: These bad boys can detect gas before workers are sent in to a potentially dangerous area. Mounted within an enclosed area, they have alarm capabilities, dependable sensors, and transmitters. They can be configured for specific gases.

Single Gas: Pretty self-explanatory. Designate these gas detectors to monitor a specific known gas or oxygen concentration. Single gas detectors are useful when you only need to monitor one gas.

Multi-gas: With unknown or multiple hazards, a multi-gas detector is best. Measure multiple gases simultaneously following this sequence: Oxygen, combustible gases and toxic contaminants.

Calibration systems: When you want to take human error out of the equation, these are what you need. They help safety managers by calibrating gas monitors, charging batteries, record keeping, create reports and communicate the results.

Bluetooth capability: Now, information can be relayed from the front-line worker to a remote host controller and back again. Now companies can have wireless connections without the expense of a private network. Apps and smartphones can also now help with constant visibility.