Synergist® Solutions: Gas Detection

Gas Detection Help and the Industrial Hygiene Process

By Bill Smith

An industrial hygienist can aptly be called a “Jack or Jill of all trades.” After all, managing the health and safety of workers and the facilities they work in can be a very complex, monumental task.

OSHA 3143, “Informational Booklet on Industrial Hygiene,” defines industrial hygiene as “the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers' injury or illness. Industrial hygienists use environmental monitoring and analytical methods to detect the extent of worker exposure and employ engineering, work practice controls, and other methods to control potential health hazards.”

Industrial hygienists can be responsible for noise, biological concerns, trips/slips/falls, personal protective equipment, fire, electrical, ergonomics, fleet, noise, air quality, and dozens of other areas. The breadth and depth of health and safety issues covered by industrial hygienists is so vast that it’s hard to fathom how any of them could keep up with such diverse demands.

One of industrial hygienists’ possible roles is to ensure successful gas detection programs within their organizations. This article reviews gas detection in relation to the industrial hygiene process: anticipation, recognition, evaluation, and control.

Anticipation

The simple understanding that potential gas hazards exist in the workplace is enough. Industrial hygienists who know their environment’s potential hazards—for example, low or enriched oxygen, or explosive or poisonous gas—anticipate the problems that could occur and purchase fixed-point or portable gas monitoring equipment to protect their workers from the dangers of potentially harmful environments. In doing this, hygienists have taken the first step.

Recognition

Industrial hygienists could also be responsible for recognizing and utilizing the proper mix of sensors to protect workers in various environments. For example, by law, a typical confined space must be monitored for oxygen, carbon monoxide, explosive gas and hydrogen sulfide—a standard four-gas combination. Hygienists must also be careful to protect against
any hazards that may produce “off gas” as a result of a manufacturing process, and/or against the actual chemicals used in a production or workplace process. Recognizing the specific dangers relevant to an industrial hygienist’s industry and applications is certainly important. Manufacturers of gas detection equipment can help industrial hygienists manage this important responsibility by providing a gas hazard assessment.

**Evaluation**

Evaluating the dangers is fulfilled simply through the use of gas monitoring equipment. Most gas monitors available today are equipped with visual and audible alarms to warn users of pending gas hazards. Some gas monitors go beyond the typical alarm modes and collect the presence of gas hazards by capturing data in “data logging” mode to help users better understand short- and long-term exposure limits, spikes in air quality and any other dangers present.

Some companies even offer equipment that can create customizable reports of any and all gas hazard incidents for the hygienist to review. The data being logged from alarm events while equipment is in use certainly makes for much easier evaluation of the hazards present in workers’ environments.

**Control**

Having reliable equipment, knowing when it goes into alarm, and reviewing its data can help control potential gas hazards. But considering the breadth of duties a typical industrial hygienist might cover, controlling the environment can be a difficult task.

So how does any hygienist find the time to best anticipate, recognize, evaluate and control gas hazards with so much already on his or her plate? One way is to rely on a service solution.

**What Is a Service Solution?**

In the gas detection world, a service solution goes beyond the requirements of providing reliable equipment, solid recommendations for the equipment, and the opportunity to view data-logged gas-related events. A service solution can make an industrial hygienist’s job much easier.

Some of the key attributes of a gas detection service solution to look for are face-to-face training, online product tutorials or podcasts, clearly communicated rules of gas detection, maintenance service, and product rentals (when needed).

But even more importantly, a gas detection service should give industrial hygienists time to focus on other duties—that is, a full-service program should help hygienists better anticipate, recognize, evaluate and control the dangers associated with potentially hazardous environments.

Industrial hygienists should look for a program that provides all of the above. Consider a program where even the gas detection fleet and data is managed. When a unit is malfunctioning, a sensor is losing life, or calibration gas is running low, a true service-based gas detection program can automatically send a new instrument, new sensors and/or replacement calibration gas cylinders. This should happen with no additional charges and before the hygienist even knows that these things require attention. Such a program eliminates instrument downtime by ensuring that equipment...
is always running at peak performance. Further, the time saved on purchase requisition approvals alone can be tremendous.

Beyond knowing when a unit is malfunctioning, a sensor is losing life, or calibration gas is running low, a gas detection service solution can answer the following questions in real time:

- Is there a usage problem?
- Is the instrument seeing very high levels of gas when in use?
- Are the calibration procedures sound, and do they ensure proper calibration and bump testing of instruments while using just the right amount of gas?
- Are the instruments being used properly?

E-mail alerts save time by feeding hygienists the following information from their gas detection service solution:

- When instruments are not docked
- When an instrument has alarmed beyond its peak alarm set point
- When an instrument has not been properly bump tested or calibrated
- When an instrument has been turned off in high alarm
- When a sensor experiences low sensitivity
- When calibration gas is low

These alerts can be sent directly to the hygienist, to any of the workers using the products, to their supervisors—in short, to anyone who needs to know. When sent to the proper personnel, the alerts can prompt root-cause evaluation and, ultimately, preventive action. This facilitates quick action at the source of the problem. Add in a solid standard operational procedure for responding to and managing these alerts and the hygienist can now follow up on problems and expect solutions without much personal effort. By allowing a service solution to delegate the alerts, safety is improved at the source.

Further, by using the data from a gas detection program, hygienists can opt to have their program assessed for potentially unsafe conditions; learn about the usage habits of each user for each monitor; compare site data between sister sites to create best practices; understand whether manufacturer recommendations such as calibration and bump testing are being adhered to; explore the calculation of time weighted averages (TWA) and various exposure limits; and much more.

And these are just some examples of what a strong gas detection service program can proactively do for today’s industrial hygienists.

With a good gas detection service solution, industrial hygienists are not alone in their quest for gas detection excellence. Having a service partner that provides cutting-edge technology on the instrumentation side is great. But even better is having a partner who is intimate with the hygienist’s day-to-day operations, who alerts them to problems, and helps fix them.

In summary, with a full-service gas detection solution, today’s busy industrial hygienist can save time, money, and—just as important—focus on other critical areas in worker health and safety.

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