biosystems Application Note	Fixed vs. Portable Gas Detectors	Date	1-1-2000
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When to use fixed rather than portable gas detectors

Management of workplace air quality hinges on two basic requirements, proper assessment of existing or potential atmospheric hazards, and implementation of procedures to eliminate, control or maintain safe atmospheric conditions. For hazards which cannot be permanently eliminated, it is necessary to monitor to ensure that conditions are safe for workers entering the affected area.

There are two basic options when it comes to atmospheric monitoring: use of portable gas detectors assigned to workers who enter the affected area, or use of continuous "fixed" detection systems which are permanently installed in the affected area, and functional 24 hours a day. Sometimes the best approach involves the combined use of both fixed and portable monitors. Deciding which approach to use is not always a trivial exercise! Make sure to ask the following questions when making your decision:

(1) What kinds of atmospheric hazards are potentially present?

Make sure you understand what kinds of hazards are potentially present. Understanding the dangers associated with the specific contaminants which may be present is critical to structuring an appropriate monitoring program.

(2) What is the source of the atmospheric hazards?

Can sources of potential hazards be identified? Are the hazards associated with the work being performed? Bacterial action? Products in use? Industrial processes? Watch out for sources which are remote from the area where the work is actually being performed!

(3) Are the hazards chronically present?

Are the hazards potentially present all of the time, or only when certain procedures, activities and/or products are being used? Hazards known to be chronically present in areas where workers are routinely allowed to enter without special precautions should be monitored on a continuous basis.

(4) What is the physical nature of the area affected?

Is the entire facility affected, or only certain areas? Are the areas outdoors and subject to good ventilation, or indoors or localized in confining areas which may prevent rapid dispersal of contaminants? Fixed detection systems are ideal for 24-hour-a-day "sentry" applications.

(5) How much time is required for workers to safely leave the affected area?

Are the affected areas congested with equipment, machinery or other obstacles to safe evacuation? Monitoring programs should be structured to allow workers adequate time to "self rescue". In other words, workers have to be alerted to hazardous conditions before they become life threatening, and while they have enough time to safely evacuate the affected area. Fixed detection systems are frequently used to provide an alarm for a general evacuation of an affected area.

(6) Is the affected area one which must be maintained safe for continuous worker occupancy?

Is the area secured against unauthorized entry (such as permit required confined spaces), or is the area one which is routinely entered by workers without special precautions being taken? Atmospheric hazards in areas routinely entered on an uncontrolled basis should be monitored on a continuous basis.

(7) What is the level of control over worker activities in the affected area.

Is entry into the affected area strictly controlled or limited to specially trained personnel? The lower the level of control over worker activities the more desirable it may be to install a continuously operational fixed detection system.

(8) What is the level of training of potentially affected workers?

One of the advantages of installing a fixed detection system is that workers in the affected area are not usually involved in the day-to-day operation of the system. All they need to do is follow company procedures in the event an alarm is sounded.

(9) What are the trade-offs in cost?

Equipping workers with their own individually assigned gas detectors can be expensive. On the other hand, a permanently installed system may provide general monitoring for an area occupied by many workers. In many cases, fixed detection systems are by far the most cost-effective approach to ensuring worker safety.