Industrial air monitoring in the workplace

Monitoring for indoor air contaminants at work is crucial for maintaining a healthy and productive environment. Poor air quality can lead to various health issues, including respiratory problems, headaches, fatigue as well as affect morale and productivity. Many areas in a facility, such as production, warehouses, chemical storage and offices have the potential for air contaminants. You may need to do some investigating at your facility to determine which process(es) may be contributing to employee exposure. Areas that are smoky, dusty, misty, have strong chemical odors or areas where employees are exposed to open containers of chemicals, such as bins, vats or mixing tanks may be a place to start.

Once you have identified areas to test, you must decide what air contaminant to test for. The challenge is identifying the air contaminants that could cause health problems among employees. You may need to evaluate the SDS's to identify the ingredients and their percentages of the overall makeup of the chemical. This should give you some guidance on what to test for. The Occupational Safety and Health Administration (OSHA) has established employee exposure limits on over 500 chemicals. These exposure limits are known as PEL's or permissible exposure limits. The PEL of a chemical is based on the average concentration of a chemical to which workers can be exposed over an 8-hour workday, 5 days per week, for a lifetime without receiving damaging effects. The list of PEL's can be found at: (https://www.osha.gov/lawsregs/regulations/standardnumber/1910/1910.1000TABLEZ1). As you review the list, you will see that exposure limits vary depending on the chemical. Those with lower exposure limits signify a more hazardous effect on employees.

Once you've devised a monitoring plan, you need to have the monitoring completed. Typically, this can be done by a consulting group or the Ohio Bureau of Workers Compensation (BWC). The monitoring devices are pumps that must be calibrated to collect the air contaminant on specific collection media. For example, charcoal media is used to collect various types of solvent vapors, and filters are used to collect different types of dust. The pumps are placed on the employee during the monitoring period, and the air sample is collected near the employee's breathing zone.

After testing, the media is submitted to a laboratory for analysis. Once the results are received, they are compared to the PEL's from OSHA's list. Results below PEL's generally require no action, but results above the PEL's would require the employer to look at ways to reduce employee exposure. A good way to do this is by using the Hierarchy of Controls, which identifies a preferred order of actions to best control hazardous workplace exposures. The actions are arranged in order of the most effective to the least effective ways to prevent exposure: elimination, substitution, engineering controls, administrative controls and personal protective equipment.

Once corrective measures have been implemented, it is recommended that a follow-up test be conducted to confirm that target air contaminants have been eliminated or reduced below the applicable limits. It is important to note that although legally enforceable, many PEL's were developed years ago and many are only infrequently updated, meaning that they may not be reflective of current information and technology. However, the National Institute of Occupational Safety and Health (NIOSH) has developed their own exposure limits known as Recommended Exposure Limits (REL's) and the American Conference of Governmental Industrial

Hygienists (ACGIH) has established Threshold Limit Values (TLV's). The REL's and TLV's are not enforceable limits, but they may offer greater employee protections because these two organizations update their exposure recommendations based on more recent research and studies.

There are many benefits to investigating the need for air monitoring at your facility. Of course, the number one concern is the safety of employees, but remember compliance with regulations, increased morale, efficiency, productivity and an overall good safety culture. By systematically monitoring and managing indoor air quality, workplaces can create a healthier, more comfortable environment for employees.

If you need help identifying potential hazards in your workplace, please contact Andy Sawan, Risk Services Specialist at Sedgwick at andrew.sawan@sedgwick.com or 330-819-4728.