Air Sampling-Helps Workers Breath Easier

A breath of fresh air is one of life’s simple pleasures. But, let it get clouded with harmful gases and vapors, and breathing becomes a difficult and dangerous endeavor. Never before has the industry faced greater challenges than today to assure clean air in the workplace - as government agencies raise the standards for air quality and issue tough new regulations. To assure that workers are breathing the cleanest air possible, a sound monitoring/air sampling program is essential.

According to OSHA, an exposure monitoring/air sampling program should be prepared and implemented to identify and quantify airborne levels of potentially hazardous substances. A water-related solutions plant, which has implemented such a program with the assistance of Magid, handles more than 400 raw materials, some of which are hazardous.

"We monitor for hazardous materials including acrylic acid and formaldehyde," says John Nelson, senior industrial hygienist at the water-related solutions plant.

At the water-related solutions plant, they perform more than 300 air-sampling tests per year. The samples are collected through a variety of OSHA and NIOSH approved methods, and the results of the tests are sent to an unbiased outside lab for analysis. "We're always evaluating for potential exposures," says Nelson. "Monitoring helps us recognize, evaluate, and recommend how to control chemical and other potential hazards in the workplace. It also helps us determine what type of Personal Protective Equipment (PPE) to provide our workers."

At a company that manufactures dyes and pigments for the graphic arts industry, they too understand the importance of air sampling. The dye/pigment manufacturer is about to institute a new process that produces nitrogen dioxide as a byproduct. With the line expertly engineered, the manufacturer doesn't expect to see any nitrogen dioxide in the air; however, the company isn't taking chances. According to Dave Fisher, they are equipping line operators with portable monitors, provided by Magid, which continually test the air for nitrogen dioxide. If nitrogen dioxide is detected (above a predetermined level), the monitor sets off an audible alarm.

Testing 1-2-3

In general, air sampling equipment should be located in the vicinity of the workers to provide an indication of airborne hazard levels to which workers are exposed. Real-time air monitoring equipment, like that used at the dye/pigment manufacturer, should be located in a position to provide an early warning of a significant release of airborne hazardous material. Appropriate direct-reading air monitoring (in real time) and time-integrated air sampling (e.g., 8 hour time-weighted average, 15 minute short term exposure limit) should be conducted in accordance with applicable government regulations. Both direct-reading and time-integrated sampling should be used to test for the presence of air contaminants.
Compounds, which are found by time-integrated sampling but are not detected by direct-reading air monitors, may warrant modification of both the monitoring program and the levels of protection.

According to OSHA, work area air monitoring should be conducted to determine if pre-established action levels are being exceeded. If the action levels are being exceeded, additional controls should be implemented, or workers should upgrade PPE to the correct level of protection.

In addition, a combination of offsite, perimeter, and work area samples should be used to assess the release of air contaminants. While the primary objective of work area air monitoring is to assist in protecting onsite personnel from airborne contaminants, this data can also be used to assess the potential for detectable offsite emissions.

Upwind and downwind, offsite and perimeter monitoring should also be conducted. Air contaminant levels should be established upwind around the site perimeter in order to define the reference point or baseline to which downwind monitoring data can be compared. Comparisons of air monitoring data with this reference data may indicate areas which generate air contaminant levels above established action levels.

With an air tight program for protecting workers, everyone in the plant should breathe much easier.