Case Study: Peracetic Acid Monitoring In Food and Beverage

A large food processor in the Midwestern US installed several new aseptic filling lines using Peracetic Acid (PAA). At the time of installation there were no exposure limits published by OSHA or NIOSH. The only existing limits were the EPA Acute Exposure Guideline levels (AEGLs) which are not commonly referenced for workplace safety. The AEGLs were developed to assess the risk of someone exposed one time to a chemical agent and so typically are less conservative than occupation exposure levels which are for repetitive exposure. Based on the lack of workplace exposure limits and information from the chemical suppliers, the company believed that PAA posed no risk to their workforce.

As the production lines were installed the workers experienced respiratory and eye irritation and the strong vinegar-like smell caused them to suspect the PAA vapor. Some workers began looking for health effects of PAA on the internet and asking questions of their employer. The workers did not fully understand all the data they found and could not precisely interpret and apply the information in a compelling way. However, the consistent and increasing concerns expressed by workers caused the company to seek a way to measure the PAA in the work environment. They already installed what they thought was adequate ventilation but they had no way to quantify this assumption.

ChemDAQ was contacted because its website mentioned PAA monitoring that was under development. (The development was technically on hold at the time due to R&D re-prioritization.) ChemDAQ worked closely with the company to develop, deploy, beta test and release a PAA sensor module for its Steri-Trac® line of continuous gas monitors.

Continuous monitoring was an essential part of bringing the PAA vapor exposures issues under control. The company made adjustments to the plant ventilation as well as balancing the pressure within the aseptic filling line. Finally, they installed “on-demand” fresh air intake for their operators. The ventilation and pressure balancing reduced PAA vapor levels for most of the work day but the levels could still vary under normal working conditions. The company provided the extra on demand fresh air intake so the operators have control over their environment. They use the Steri-Trac monitors to help them know if they should increase the fresh air supply.

Continuous monitoring has taken the guess-work out of work place air quality. The ever present smell of PAA can hurt productivity because workers know they’re being exposed but they don’t know if the levels are dangerous or not.

Visible, intuitive continuous area monitors put workers at ease when levels are safe and protect them when levels are elevated. If corrective action is required the monitoring system tells them exactly when the problem is corrected, reducing downtime without compromising worker safety.

The American conference of Governmental Industrial Hygienists (ACGIH) has proposed an occupational exposure limit of 0.4 ppm STEL. This is a short term exposure limit (15 minute time-weighted-average) and is expected to be promulgated in 2013. A continuous monitoring system is essential to ensure that workers are not exposed to levels exceeding established limits.