The True Cost of Allergens in the Industrial Workplace

Occupational asthma ranks as a leading issue in chemical processing plants, but improving industrial hygiene mitigates breathing hazards. It also improves overall profitability

QUOTES: 'Cleaning house isn't just the right thing to do. It makes business sense' 'It is absolutely critical that the HEPA filter be installed after the motor' By Jessica Letscher In addressing a myriad of operational issues related to worker health and safety, chemical processing and manufacturing companies face a growing challenge: allergens in the workplace. Very simply, as these industries have steadily increased the use of simple chemicals and organic compounds, breathing hazards have increased. The National Institute of Occupational Safety and Health (NIOSH) has estimated that about 140,000 workers in the U.S. are regularly exposed to acid anhydride compounds, chemicals used to produce epoxy resins, adhesives, and fire retardants. Of these workers, an estimated 20 percent have occupational allergic asthma. Additional studies have identified more than 200 substances &#151 gases, vapors, and organic and inorganic dusts found in manufacturing workplaces and among certain occupations &#151 as causes of asthma. It's estimated that some 11 million workers are exposed to one of these substances. These substances range from animal- and plant-derived proteins, insect and plant dusts, chemicals, pharmaceutical agents, and bacterial enzymes. They are deposited in the lungs in various ways, depending on their size and shape. For an allergic reaction to occur, a worker must first be sensitized to a substance, usually a protein, called an allergen. The body's immune system on first exposure to this substance misreads the allergen as a foreign substance and makes antibodies to get rid of it. Once this sensitization takes place, it constitutes a permanent occupational injury. An allergic reaction can occur when the patient is again exposed to the substance. Constant exposure can result in severe, disabling asthma.

Occupational asthma clearly ranks as a leading workplace concern for employers and employees, with 5 to 15 percent of all cases of asthma estimated to be related to working conditions. These

estimates vary geographically, due to variations in worksites, exposure, engineering factors, and industrial hygiene. But it is one of these variables &#151 industrial hygiene &#151 that can be significantly managed to assist in mitigating the hazards of allergen exposure in the workplace. By addressing a site's level of industrial hygiene &#151 from the most basic to the more complex regimens &#151 companies can take a proactive stance in reducing not only health risks for workers but also adding to their overall profitability. So, cleaning house isn't just the right thing to do. It makes business sense. By investing in a proper plant sanitation program, employers should realize long-term savings in terms of employee productivity and reduced healthcare costs. When implementing and maintaining precise cleaning programs, the choice of quality equipment and development of precise sanitation procedures are key. And since a primary goal is the collection of the hundreds of sources of allergens, the choice of a quality, high-powered industrial vacuum is critical. As plant contamination control specialists implement new processes and new vacuum technology, they should consider the following: &#149 How allergen particulates are created in the workplace &#149 How to prevent them from entering the workplace &#149 What the best methods are for removing dust and debris &#149 What specific cleaning supplies and equipment are best for their application Different plants will have varying needs, but there are multiple surfaces to be considered. Ceiling panels, lighting units, HEPA filtration units, sprinkler heads, walls, glass surfaces, process equipment, piping systems, floors, and manufacturing equipment should all be decontaminated regularly.

In addition to addressing surfaces, ambient air must be monitored and maintained at proper levels. HEPA-filtered ventilated systems assisted by preventative measures help manufacturers limit airborne contamination. To minimize sources of allergens, particle size must be taken into account. Vacuum cleaners for this purpose should be HEPA-filtered to ensure that 99.97 percent of all particles down to and including 0.3 microns are collected and retained. For even smaller particulates, a ULPA-filtered model is necessary to collect and retain particles down to 0.12 microns. ULPA stands for ultra-low penetration air. In addition, it is absolutely critical that the HEPA filter be installed after the motor in order for it to properly filter the exhaust stream. The motor's commutator and carbon brushes generate dust, and if the exhaust stream is not filtered, that dust will simply be released back into the environment. However, not all HEPA-filtration systems are created equal. For peak operating efficiency, a vacuum should have a multi-stage, graduated filtration system, which uses a series of progressively finer filters to trap and retain particles as they move through the vacuum. This multi-stage system protects the HEPA filters from blockage and excessive wear and tear, maintaining peak performance. Ideally, a vacuum's filtration system should use oversized filters, which slow airflow action across the larger surface areas and optimize the air-to-cloth ratio. This allows the vacuum to easily collect large volumes of debris over extended periods of time while once again minimizing maintenance. In chemical-intensive environments, plant operators should choose vacuums constructed entirely of stainless steel and aluminum to eliminate percussion arcs and should collect materials without sparking, reducing the threat of explosion and fire. To further protect workers, they should be powered by compressed air and have additional built-in anti-static features including a static grounding wire that ensures a high level of conductivity

for static dissipation, anti-static wheels mounted on rigid and swiveling castors for easy maneuverability, and an anti-static filter that guarantees high filtration efficiency. Companies that are truly invested in implementing an efficient and cost-effective system for allergen control should recognize the importance of the inter-relationships of the major components of a comprehensive cleaning program &#151 materials, equipment, and personnel. And the selection of a high-efficiency industrial vacuum that has the filtration capabilities to preserve the integrity of the product and protect the health and safety of personnel is one of the most critical and cost-effective elements. *Jessica Letscher is with Nilfisk-Advance America, a leader of high-performance vacuum technology for a range of industries including food, chemical, and pharmaceutical. Headquartered in Malvern, PA, Nilfisk-Advance America provides industrial vacuums for heavy-duty applications that require maximum suction power and specialty vacuums for applications that demand air purity and facility cleanliness. More information is available by calling 877-215-8322 or visiting www.pa-nilfisk-advance.com.* WITH IMAGE OF COUGHING

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