

Hidden assassins

Every year, thousands of people in Great Britain develop occupational asthma or die of lung diseases, due to airborne contaminants they inhale at work, writes Brian Wall

No organisation wants to see the health of its employees jeopardised and most take their obligations very seriously. Yet some aspects of employee protection may be more evident than others. With airborne contaminants, for example, the enemy is often invisible and can slip through the proverbial net.

Take plants that produce dust, mist (such as paint mist from spraying), fumes (from welding), gas (carbon monoxide from furnaces) or vapour (solvents from painting). All of these pose a level of risk to health, so it's vital that employees are given the highest levels of protection.

This is where local exhaust ventilation (LEV) systems come in. Properly designed LEV collects and removes contaminated air, cleans it (where necessary) and gets rid of the contaminants safely.

So, how marked is the problem? Within the UK alone, an estimated 3,000 people develop occupational asthma every year through exposure to dangerous substances at work, while around half of sufferers find their pre-existing asthma is aggravated by conditions at work, according to Asthma UK.

The World Health Organisation (WHO) recommends that the highest concentration of airborne particles (PM10) should be $50\mu\text{g}/\text{m}^3$ ($0.05\text{ mg}/\text{m}^3$) over a 24-hour period. "Actual levels in warehouses, factories and on shopfloors are, on average, between $200\text{--}500\mu\text{g}/\text{m}^3$, so it is advisable for any company undertaking dusty processes to carry out initial assessments and establish whether people are at risk," advises Louise Harris, UK brand manager, Zehnder Clean Air Solutions.

"Before any products are installed, it is important to measure the dust contamination levels over a



week or shift/production pattern to ensure a comprehensive understanding of the airborne concentrations. This helps pinpoint whether the problem is occurring throughout the day or only at specific times – and will dictate which control measures are used," she adds.

High concentrations of dust etc can then be simply and quickly removed by installing air filtration units at the correct locations. Modern low-noise and low-energy equipment works like a continuous vacuum cleaner, reducing the concentration of airborne particles by 60–80%.

No panacea

However, LEVs are not a cure-all. According to the HSE, many employers who buy equipment later discover it doesn't work properly. Why? Because they purchase the wrong type or they're not properly installed, used or maintained. So it's imperative to make sure your solution is fit for purpose.

Gary Keene, project director at Nederman, which supplies industrial air filtration, agrees. "Unless a plant has specialists in-house, they will need to seek professional advice when designing, commissioning and testing cost-effective LEV... Rather than picking and choosing individual products, the key is to look at the system and create a bespoke solution designed to match a plant's industrial processes. Often a slightly bigger initial investment can be a better long-term solution, rather than purchasing individual pieces of apparatus." **FE**

Covering all the bases

The Control of Substances Hazardous to Health (COSHH) regulations state that you must control risks from airborne contaminants. But while installing local exhaust ventilation (LEV) may help, you should consider other options first, says the HSE.

- Eliminate the source and/or reduce its size
- Substitute the material being used with something safer
- Modify the process to reduce duration or frequency of emission
- Decrease the number of employees involved with a process
- Apply simple controls, such as fitting lids to equipment.

For more information, go to: www.hse.gov.uk/coshh

