



## Fresh Air

For more than a century there have been efforts to improve air quality in the working environment, both in enclosed factories and other industrial areas. Even with scant knowledge of respiratory diseases it had been clear that people were more productive in a cleaner and better environment. One of the main focuses of the Health and safety Executive (HSE) in the UK at the current time is reducing welding fumes as these have recently been categorised as a carcinogen.

The CoSHH (Control of Substances Hazardous to Health) regulations which are still current and valid came into force in 2002 and are simply the culmination of decades of research and study to enable practical controls over workplace atmospheres to be established and monitored. Over time dust extraction has become more of a quantifiable science, with particular attention paid to improving the health of the workforce employees as well as enhancing product quality. More recently the term Local Exhaust Ventilation (LEV) has come into use. More than merely dust control, it brought into focus fume, vapour and hazardous gases and HSE set about cementing definitions and establishing exposure limits for a huge range of airborne contaminants from ever increasing volumes of test data.

LEV has become the accepted name for the equipment for removing contaminants from workplace air, with HSE publication EH40/2005 Workplace Exposure Limits being the cornerstone of ensuring air quality. This document is regularly updated with the latest edition released in 2020. It is imperative to know what contaminants (or combination of contaminants) may be present, either produced by or inherent in any process in the workplace. EH40 defines workplace exposure limits (WEL) that are allowable under the CoSHH regulations. It is incumbent on the process owner, however, to minimise exposure to the workforce by any practicable means, not simply to “dodge” just below the limit. Furthermore, EH40 describes how to determine exposure levels by means of time weighted averages (TWA) and short term exposure limits (STEL). As mentioned above, these apply to all dusts, vapour and gases.

Dissemination of knowledge by properly structured training is vital to lasting success. the HSE produces guidance for employers and employees alike and employees are urged to get involved in their own respiratory safety. Dust and fume hoods should be seen to work effectively, with airflow indicators as an additional check. Airflow indicators alone do not guarantee effectiveness of the LEV system, but they should be checked regularly as part of the operators’ general duties, together with signs of undue dust deposits, unwanted smells etc. All defects must be reported promptly.

All parties should cooperate from the outset of the LEV design process. Suppliers should thoroughly understand the process machinery and material characteristics, ensuring that the LEV is easy to use and does not obstruct operator actions.

SHAPA is involved with both the Safety and Health Engineering Partnership (SHEP) <https://www.shepuk.co.uk> which includes many interested partners including the HSE and The Industry and Regulatory Forum on LEV to provide training and guidance in designing, installation, commissioning and ongoing testing of LEV systems. A competent company should always be employed for “annual” testing of all LEV systems who are able to test accurately to standards and affix appropriate labels and offer advice as appropriate. SHAPA in conjunction with The Industry and Regulatory Forum on LEV have produced a Matrix of LEV knowledge and guidance for key roles, a copy of which is available on the SHAPA website in the technical section to help with the selection of competent organisations <https://www.shapa.co.uk/technical.php>

The complete LEV design, installation and testing service is available from within the SHAPA community of companies, to inspire real confidence at economic cost throughout the lifetime of the



installation. Check out the Equipment Finder at <https://www.shapa.co.uk/equipment.php> or download one of the many LEV related technical documents which can be found at <https://www.shapa.co.uk/technical.php> or email your enquiry to [info@shapa.co.uk](mailto:info@shapa.co.uk).