

Independent Guide

What are the 3 major indoor air pollutants?



Independent workplace compliance

Introduction

Within the workplace, air quality is governed by the local ambient air, the processes/activities in that workplace and the level of control the owner/employer/occupier has (naturally ventilated, mechanically ventilated, local exhaust ventilation, etc.). A more detailed breakdown of workplace related air quality/air pollution constituents would include, for example:

Gaseous - e.g. Carbon monoxide, Carbon dioxide, Oxides of nitrogen, volatile organic compounds (VOCs), other compounds and chemicals;

Dusts/Particle matter – e.g. PM2.5, PM10, carbon, crystalline, paper, soil and wood dust; and

Biological – e.g. general bacteria, Legionella, fungi, moulds, pollen, other allergens, etc.

Some of the constituents will be influenced, by the local environment, some internally generated and all by the ability of the workplace to control them.

What level of VOC is dangerous?

The Health and Safety Executive guidance note, Workplace Exposure Limits EH40, details workplace exposure standards for a number of VOCs over an eight-hour time-weighted average reference period, and over a fifteen minute period.

Exposure to significant quantities of different VOCs can result in various symptoms. The most common are eye, nose and throat irritation and headaches. Some VOCs, such as benzene, are known to cause cancer in humans.

Most of the time, levels of VOCs in the workplace will be extremely low. However, these levels sometimes increase after refurbishment when new furniture and furnishings, such as new carpets and equipment, have been introduced, particularly if ventilation to the refurbished area is inadequate.

Name of VOC	Common sources
Acetone	Lacquer solvent, tobacco smoke
Benzene	Tobacco smoke
Styrene	Insulation foam, jointing compound, fibre board, tobacco smoke
Toluene	Adhesives, jointing compound, sealing tape, wallpaper, floor coverings, vinyl, paint, tobacco smoke
Xylene	Adhesives, wallpaper, floor coverings, lacquers, tobacco smoke
Hexane	Floor coverings, wallpaper, chipboard, insulation foam, tobacco smoke
Ethanol	Fibre board, solvents, tobacco smoke
Cyclohexane	Tobacco smoke, lacquers, resins, paint removers



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How do you assess indoor air quality?

You should assess indoor air quality across a range of areas within your buildings. This can be achieved by thoroughly examining associated plant equipment, and carrying out representative testing and sampling of your air systems throughout the areas you are responsible for. Aspects such as dust and microbiological contaminants together with the impact of various groups of gases affect air quality, all of which are influenced by the standards of cleanliness and maintenance of your ventilation systems.

Key considerations for assessing indoor air quality:

- Do you check, inspect, and monitor your air systems, indoor air quality and comfort conditions?
- Is this completed internally or independently?
- Is the testing equipment regularly serviced and calibrated?
- Is the testing equipment correctly positioned?
- Are representative locations being measured?
- Have you investigated the causes of any issues with your air systems performance and/or any complaints from occupiers?
- Do you review your activities regarding indoor air quality and comfort conditions?

Having been supporting our customers with their IAQ strategies and providing independent and UKAS accredited assessments for over 37 years, our activity may be useful to your IAQ approach.

This guide is of a general nature; specific advice can be obtained from Assurity Consulting.

Assurity Consulting is the UK's leading independent compliance consultancy specialising in workplace health, safety and environmental solutions. We have over 35 years' experience of helping customers of all sizes, from across all sectors, manage their compliance responsibilities, making sure that their organisation is compliant, their employees are safe, their processes are cost effective and their management team is in control.



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