

Independent Guide

What are Volatile Organic Compounds?



Independent workplace compliance

What are volatile organic compounds?

Volatile organic compounds (VOCs) are a group of carbon-based chemicals, many of which form the essential building blocks of life. However, a number of organic compounds we use today, although occurring naturally, are often synthesised. At room temperature vapours readily escape volatile chemicals. VOCs are released from burning fuel, such as gasoline, wood, coal and natural gas; and from solvents, paints, glues and other products used in the workplace, as well as tobacco smoke. Vehicle emissions are also a major source of VOCs.

What is their significance?

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.

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.

When can VOCs be a problem in the workplace?

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.

How can you monitor VOCs?

Levels of VOCs can be monitored, such as benzene, acetone and toluene as part of a Workplace Environmental Assessment.

How can you reduce levels of VOCs in the workplace?

- Increase ventilation after office refurbishments (i.e. 24-hour ventilation following an office refurbishment).
- Choose low VOC products.
- Store chemicals in well ventilated areas.
- Maintain HVAC systems to ensure adequate ventilation and air displacement.

What are the sources of VOCs?

Name	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

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 30 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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