

# Volatile Organic Compounds (VOCs)

## What are Volatile Organic Compounds (VOCs)?

VOCs originate from a grouping of over 10,000 individual organic chemicals that evaporate into gases or vapours in the atmosphere at room temperature. They can be emitted by a wide range of products such as: engineered wood materials; carpet; paints and coatings; adhesives and sealants; and building materials and furniture.

The inhalation of these organic compounds can cause a variety of human health problems depending on the chemical and its toxicity. Short-term exposure to high levels of VOCs can cause symptoms such as irritation to eyes, nose or throat; headaches; nausea or vomiting; dizziness; visual disorders; and memory impairment. Longer-term exposure increases the risk of serious cancer-related illnesses and damage to the liver, kidney and central nervous system.

## How are VOCs relevant to fit out?

Environmental assessment methods such as **BREEAM**, **SKA**, **LEED** and **WELL** include criteria which require low VOC materials to be used in a project. Where they cannot be avoided, their levels must be monitored throughout the construction.

Consciousness of the potentially damaging effects of VOCs in the atmosphere is growing and low-VOC materials and finishes are therefore increasingly requested by clients. These requirements need to be communicated to the design and construction teams as well as subcontractors where they are responsible for providing materials and finishes such as paints, adhesives, sealants, and wood panels (such as plywood, mdf and OSB).

## How to measure VOCs

VOC monitors are widely available on the market for residential and office use and also for use on construction sites. This means occupants can now view live data which records VOC levels, allowing them to complain to building management if air quality does not live up to their expectations.

## VOC labels, schemes and testing standards

The best way to control exposure to pollutants is avoid products that give off gas VOCs or at least have low emissions.

A number of European countries and the United States, have introduced standards and labelling schemes to show the VOC emissions from various

products used within the indoor environment. These can be used for demonstrating compliance with BREEAM, SKA, LEED and WELL environmental assessments. A number of schemes and labels cover multiple products.

BREEAM (GN22) provides separate guidance. Any BREEAM, SKA, LEED or WELL assessor or one of our Environment Team can advise on whether your product meets the applicable criteria.

## Onsite wireless VOC monitors

- **Extech VFM200** available at a variety of retailers including: [ISSS](#) and [Test Meter](#)
- **B Side EET 100** - from TomTop
- **Tiger Cub Personal PID** - VOC Monitor
- **Shaw City** has a range of purchase and hire options [www.shawcity.co.uk/VOcs-and-Gas/PID-and-Gas-Monitors](http://www.shawcity.co.uk/VOcs-and-Gas/PID-and-Gas-Monitors)
- **BSRIA** [www.bsria.co.uk/instrument/hire/product/ion-sciences-phocheck-tiger/](http://www.bsria.co.uk/instrument/hire/product/ion-sciences-phocheck-tiger/)

## Office or residential VOC monitors

→ **Foobot** - <http://foobot.io/>

→ **Cube** - <http://koto.io/>



^ Extech VFM200

✓ **Tiger Cub personal PID**  
(photoionisation detection)



## About Morgan Lovell

As office design and fit out specialists, we transform workplaces, bringing brands to life and inspiring a different way of working - so your teams can perform at their peak. Our approach to every project focuses on the long term, as we aim for results that protect and enhance the environment by reducing carbon emissions.

Morgan Lovell's company-wide commitment to low carbon and sustainability means we have reduced our own emissions by 64 percent since 2010, as we continue to work towards our net zero target by 2030. We work closely with each client and our supply chains to help them achieve their own low carbon goals.

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