

# Indoor Air Quality

*What causes poor indoor air quality?*

## Particulate Matter (PM)

- A mix of solids and liquids, including carbon, complex organic chemicals, sulphates, nitrates, mineral dust, and water suspended in the air.
- The size of the particle will determine where it will end up once you breathe it in. Larger particles may be trapped in your nose, while PM<sub>10</sub> can reach your airways. Fine particles (PM<sub>2.5</sub>) may reach the breathing sacs deep in your lungs, and ultrafine particles may even cross into your blood stream.

## Volatile Organic Compounds (VOCs)

- A large group of chemicals, usually with a strong smell, each of which has its own toxicity and potential for causing different health effects.
- Common examples are: benzene, ethylene glycol, formaldehyde, methylene chloride, tetrachloroethylene, toluene, xylene, and 1,3-butadiene.
- Exposure to VOC's may make symptoms worse for people with asthma.

## Gases

- Carbon Dioxide
  - CO<sub>2</sub> levels of 2,000 to 5,000 causes headaches, drowsiness and air feels stale or stuffy.
  - The work place exposure limit in the UK is an average of 5000ppm for 8 hours.
- Carbon Monoxide
  - CO levels above 400ppm causes sever headaches and can be life threatening after 3 hours of exposure.

## Damp and Mould

- Damp leads to condensation, which encourages mould and other fungi to grow.
- If your home's damp, you might have an irritated nose and throat, or feel short of breath

*Can you guess what pollutant is produced by the following things?*



**Carbon Dioxide** – The concentration of CO<sub>2</sub> that humans exhale is ~40,000 ppm!



**Carbon Monoxide (and Nitrogen Dioxide)**– created when fuels like gas don't fully burn. Make sure to use your extractor fan!



**Particulate matter** – Dust and pet hair can build up. Vacuuming regularly can help!  
**VOC's** – some carpets/soft furnishings are made using formaldehyde.



**Damp and Mould** – Drying clothes in a poorly ventilated space leads to a buildup of condensation.



**Particulate matter** – burning candles and incense sticks release fine PM matter. Burning incense releases 1000x more particles than candles!  
**VOC's** – Some fragranced candles release VOC's when they are burnt.



**VOC's** – Some cleaning products contain VOCs, particularly those in a spray bottle can cause irritation to your lungs and may increase your risks of developing an allergy or asthma. These products are normally clearly labelled!

Add a sticker and lift the flap to find out!