



CROWBERRY CONSULTING

Environment, Ethics and Corporate  
Responsibility Management

## Air Pollution FAQ's



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## **What is air pollution?**

Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment, into the atmosphere.

Historically, the main air pollution problem in both developed and rapidly industrialising countries has typically been high levels of smoke and sulphur dioxide emitted following the combustion of sulphur-containing fossil fuels such as coal, used for domestic and industrial purposes. These days, the major threat to clean air is now posed by traffic emissions. Petrol and diesel-engine motor vehicles emit a wide variety of pollutants.

### **Box 1. Pollutants**

- 1** Sulphur dioxide – created from burning sulphur in fossil fuels and oil. Produces lung dysfunction when measured in moderate levels within atmospheric conditions.
- 2** Nitrogen oxides – produced from vehicle emission and the production of electricity. Nitrogen oxides compromise lung functions and cause respiratory and viral illness, notably in children.
- 3** Toxic organic micropollutants (TOMPS) – very dangerous chemicals caused from combustible activities including using fuels such as waste from industry smokestacks, and vehicular and engine emissions. Carcinogenic chemicals such as dioxins, furans, polyaromatic hydrocarbons and polychlorinated biphenyls in small amounts are highly deleterious to human and lung breathing animals, causing cancer, lung disease, immune deficiency and cerebral dysfunction in young children.
- 4** Fine particles – dusts, sulphates and nitrates caused from combustible sources such as road traffic and atmospheric reactions. Fine particles are carcinogenic and enter the lungs and bloodstream, causing inflammation as well as more serious conditions such as heart and other disease.
- 5** Butadiene – a chemical released in the atmosphere from the industrial burning of rubber and synthetics and the emissions from petrol and diesel operated machinery. Butadiene is responsible for a range of human health problems including birth defects, organ damage and reproductive disorders.
- 6** Carbon monoxide – a poisonous gas produced from petrol engines. Damages respiratory and circulatory body functions. Reduces oxygen supply to major organs including the heart and causes heart disease.
- 7** Lead and heavy metals – industrial areas emitting smoke and vapour waste create extremely dangerous leads that damage the neural and organ development of infants and young children as well as causing deformity in the unborn. This form of highly dangerous industrial pollution also causes mental, neurological and visual problems
- 8** Ozone and volatile organic compounds (VOLs) – VOLs react with sunlight and nitrogen oxide to create vapour that is capable of travelling thousands of miles. It causes damage to the natural environment as well as human health conditions such as asthma and lung disease.

## **How is air quality regulated?**

The [Ambient Air Quality Directive 2008/50/EC](#) merges the previous existing legislation. The new Directive updates the monitoring site requirements in a number of key ways, notably by requiring more monitoring to be carried out at roadside sites (at least one urban background and one roadside site in each zone unless this increases the number of sites and sets a ratio between the total number of roadside sites and the total number of sites across the Member State).

By the time the first draft of the preliminary assessment for the Directive was carried out in 2006, the United Kingdom's national monitoring networks were compliant with the requirements of the pre-existing EU air quality directives.

### **Why do we need to regulate air quality?**

Polluted air can cause problems for people who have lung diseases, heart conditions and asthma. Some pollutants are known to cause cancer. Children and older people are particularly at risk. Air pollution also affects plants and wildlife, which is why it can be more difficult for plants to thrive in city centres. Sulphur dioxide and nitrogen oxides can make water and soil more acidic (and therefore harmful to some plants and animals). This can also reduce the amount of plants that provide food and shelter, causing serious problems for other wildlife.

In March 2012, air pollution levels in London and Northern England reached a record high due to a combination of traffic fumes, relatively still weather and an influx of dirty air. The record high will worry officials preparing for the arrival of the world's best athletes and hundreds of thousands of spectators for the Olympics in four months time. So, it is important that we all strive to keep our air clean, for the sake of our own health.

### **How can I as an individual help to improve air quality?**

- Use less energy at home, then less coal, oil and gas will be burnt, thus reducing air pollution.
- Using public transport, cycling or walking wherever possible will reduce traffic pollution and fumes.
- If you have to use your car - make sure to have the right tyre pressure. If the pressure is down by 0.5 bars, the car needs 5 % more fuel and gives off more pollution. Driving with the air conditioner turned on increases fuel consumption by 30 % whereas driving with windows open only increases it by 5 %. Using a roof rack on your car can increase fuel consumption by 20 to 30 %. Bicycles are better attached to the back of the car.
- When buying paints, varnishes or glues, look for products that are water-based or have low solvent content.

Individuals and businesses can all play a role in improving air quality. The transport industry can play a key role in improving air quality by adopting higher vehicle standards and fitting older vehicles with technology that helps mitigate pollution (retrofitting), complying with Low Emission Zones and through fuel efficient driving.

### **What happens when I don't comply with the European legislation?**

Member States may be subject to fines for heavily polluted areas; however, as has been seen in London recently, the use of suppressants and an extension to compliance deadlines mitigates any polluting activity. The Ambient Air Directive sets an annual limit of 35 days, but in north-west London, concentrations of coarse particulate exceeded 50 micrograms per cubic metre (see the [WHO air quality guidelines](#)) for the 36<sup>th</sup> day in 2012. The suppressants used (typically calcium magnesium acetate solution) sticks particulates to the ground. However, London (and the UK) may be subject to fines if the above data is proved correct. It remains to be seen how much these fines will amount to.

The total number of air pollution incidents brought to the attention of, and investigated by the UK Environment Agency was 161 in 2006 and 151 in 2007. In 2006, court proceedings were initiated against 17 offending parties (12 companies and six individuals). Two of the defendants were acquitted, a further six were cautioned, eight were given fines totalling £96,500, and one individual received an unspecified custodial sentence.

### **How can Crowberry Consulting help you?**

- ❖ As part of an EMS such as ISO14001 provide internal environmental auditing functions.
- ❖ Review your legal registers to ensure all relevant legal and other requirements are listed.
- ❖ Provide an Initial Environmental Review.
- ❖ Provide advice on low carbon technologies to reduce emissions and costs.

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