



National statistics

Concentrations of particulate matter (PM10 and PM2.5)

Updated 28 April 2022

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Air quality statistics in the UK, 1987 to 2021 - Particulate matter (PM10/PM2.5)

dated 28 April 2022

Why measure PM?

Particulate matter (PM) is everything in the air that is not a gas and therefore consists of a huge variety of chemical compounds and materials, some of which can be toxic. Due to the small size of many of the particles that form PM some of these toxins may enter the bloodstream and be transported around the body, lodging in the heart, brain and other organs. Therefore, exposure to PM can result in serious impacts to health, especially in vulnerable groups of people such as the young, elderly, and those with respiratory problems. As a result, particulates are classified according to size. The UK is currently focused on measuring the fractions of PM where particles are less than 10 micrometres in diameter (PM10) and **less than 2.5 micrometres in diameter (PM2.5)** based on the latest evidence on the effects of PM to health.

Both PM and the precursor pollutants that can form it can travel large distances in the atmosphere. A small proportion of the concentrations of PM that people in the UK are exposed to come from naturally occurring sources such as pollen and sea spray (approximately 15 per cent). Another third is transported to the UK from other European countries. However, around half of UK concentrations of PM comes from anthropogenic sources in the UK such as domestic wood burning and tyre and brake wear from vehicles. As such, it is in the interest of the UK to measure concentrations of PM as close to these sources of anthropogenic emissions as possible in order to effectively assess exposure to PM that can be tackled via UK policies.

The Air Quality Standards Regulations 2010 require that concentrations of PM in the UK must not exceed:

- An annual average of $40 \mu\text{g}/\text{m}^3$ for PM10;
- A 24-hour average of $50 \mu\text{g}/\text{m}^3$ more than 35 times in a single year for PM10;
- An annual average of $20 \mu\text{g}/\text{m}^3$ for PM2.5.

Trends in concentrations of PM10 in the UK, 1992 to 2021

1 Annual mean concentrations of PM10 in the UK, 1992 to 2021

The PM10 index shows the annual mean, averaged over all included sites that had annual data capture greater than or equal to 75%. The shaded areas represent the 95% confidence interval for the annual mean concentration for roadside sites (red) and urban background sites (blue). These intervals narrow over time because of an increase in the number of monitoring sites for both roadside and urban background sites; and a reduction in the variation between annual means for PM10 measured at roadside sites. Annual means for individual sites can be found in the PM10 [statistical tables](https://www.gov.uk/government/statistical-data-sets/env02-air-quality-statistics) (<https://www.gov.uk/government/statistical-data-sets/env02-air-quality-statistics>) that accompany this report.

Figure 6: Annual mean concentrations of PM10 in the UK, 1992 to 2021