

AIR POLLUTION

Information Sheet



Particulate matter (PM)

PM can enter the air in a variety of ways. Some PM come from nature, such as pollen from plants, dust from deserts or salt from the sea. In cities, however, PM is sometimes referred to as soot and mainly comes from human activities that involve burning fossil fuels. This includes car engines, central heating systems from homes and fumes produced by factories and power stations.

PM is trillions of tiny particles of either liquids or solids that float in the air and come in various sizes. Coarse particles are less than 10 microns in diameter, fine particles are less than 2.5 microns in diameter and ultra-fine particles are less than 0.1 microns in diameter. By way of comparison, a very fine grain of sand is 95 microns in diameter and a human hair measures 75 microns across.

There is a large amount of evidence that long-term exposure to PM leads to serious health conditions and early death. There is a clear link between exposure to PM and cardiovascular disease, respiratory disease and lung cancer. The human body is equipped with natural defenses to keep some coarse particles out of our bodies, such as coughing, sneezing and nasal hair. However, these offer no defense against the ultra-fine particles which are so small they can pass through the lungs and enter the bloodstream where they can cause illnesses in other parts of the body.

Nitrogen dioxide

Tests have shown that the highest concentrations of nitrogen dioxide occur in city centres. Breathing in air that contains high levels of nitrogen dioxide can lead to a number of harmful effects on the lungs.

These include the inflammation of the airways, reduced lung function, increased likelihood of asthma attacks and increased likelihood of admission to hospital with breathing difficulties. There is also evidence that exposure to nitrogen dioxide is a likely cause of asthma in children. Government studies suggest that 80% of nitrogen dioxide pollution in the UK is caused by transport with the largest polluters being diesel vans and cars.

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Other pollutants

Carbon monoxide

Carbon monoxide is produced when fuels such as wood and gas are burned without enough oxygen. It is a colourless, odourless and tasteless gas that can be fatal if it is allowed to build up to high levels indoors. Prolonged exposure to low levels of carbon monoxide can result in flu-like symptoms.

Sulphur dioxide

Sulphur dioxide has an irritant effect on the lining of the nose, throat and airways that is felt almost immediately after breathing it in. Sulphur dioxide enters the air when sulphur-containing fuels, such as coal, are burned. Although it is invisible, sulphur dioxide has a sharp smell.

Ground-level ozone

The layer of ozone that exists in the upper atmosphere is extremely important and helps to protect us. However, ground-level ozone, sometimes known as smog, causes serious health problems when it is breathed in. It is created when gases emitted from exhaust pipes, particularly nitrogen dioxide, are exposed to sunlight.

This photochemical reaction results in creating a form of PM that triggers asthma attacks, shortness of breath and respiratory infections. Long-term exposure to ozone is linked to cancers, heart disease and reproductive issues. People at particular risk from ozone include pregnant women, children and teens, people over 65 and people who live, work or exercise outdoors.