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## High pollution episode warning: First "summer-smog" of 2011

The high pressure system persisting over the UK is forecast to bring warm and still conditions to the UK over the Easter weekend. These conditions mean it is likely that the UK will experience a high pollution episode this weekend.

Elevated levels of PM<sub>10</sub> and ozone reaching high or moderate are expected from now until at least Sunday. The forecast is therefore for high pollution for PM<sub>10</sub> and ozone across England and Wales, and low for other pollutants over the weekend.

Some people are more sensitive to ozone than others and may begin to notice an effect on their breathing. People with asthma are not necessarily more sensitive but, if affected, can use their 'reliever' inhaler. The public are urged to take sensible precautions such as:

- avoiding exercise outdoors in the afternoon can reduce exposure to ozone; and

- avoiding making unnecessary short car journeys wherever possible can reduce the formation of ozone.

Regular updates on levels of particulate matter (PM<sub>10</sub>), sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide are available at [uk-air.defra.gov.uk](http://uk-air.defra.gov.uk) (UK Air Information Resource) and from Defra's freephone helpline (0800 556677), which also offers health advice to those who may be particularly sensitive to air pollution.

## Notes to editors

Ground level ozone is formed when sunlight acts on nitrogen dioxide and other atmospheric substances close to the ground. The pollutants that cause ground level ozone come from a range of sources, including petrol and other fuels.

## Air Quality Measurement and Forecasts

Air pollution is described as 'Low (1-3)', 'Moderate (4-6)', 'High (7-9)' or 'Very High (10)'. The classifications were chosen on the basis of effects on health and are based on medical and scientific research. Full details of the bands for all the pollutants are available on the website [uk-air.defra.gov.uk/air-pollution/bandings](http://uk-air.defra.gov.uk/air-pollution/bandings).

In addition to the sources of air quality information described in the information bulletin, the information and the air pollution forecast is also sent by e-mail, free of charge, daily to a variety of outlets including regional and national newspapers, television and radio stations, environmental groups, local authorities, and international organisations (e.g. RIVM in the Netherlands). If you would like to be added to this service, ring the Government's contractors at AEA Energy & Environment (Paul Willis on 0870 190 6602) or subscribe at [uk-air.defra.gov.uk](http://uk-air.defra.gov.uk).

## Health Advice

The following advice on health applies when air pollution is 'high' or 'very high':

During episodes of air pollution experienced during the summer in the United Kingdom, levels of ozone, nitrogen dioxide and particles may be raised. Most people will experience no ill effects. Those suffering from lung diseases (including asthma) particularly the elderly should be aware that their symptoms might worsen. They may need to consider modifying their treatment as they usually do when symptoms increase, consulting their doctor if this is not effective.

People who have noticed in the past that their breathing is affected on hot, sunny days should avoid strenuous outdoor activity, particularly in the afternoon. Children with asthma should be able to take part in games in the usual way, although they may need to increase their use of reliever medicines before participating. There is no need for them to stay away from school.

Those suffering from a heart condition and who notice a change in their symptoms should get medical advice as they normally would.

## Presentation of the information

When air pollution levels are presented to the public, an overall summary is provided followed by pollutant

specific information. When the overall summary is presented for each region, levels of air pollution are described as those occurring in the highest band for any individual pollutant. For example, if levels of all pollutants in a region were low, with the exception of one pollutant that was high, then in the overall summary the air pollution for that region would be described as 'high'.

## Action individuals can take to reduce pollution

- Road vehicles are a major source of many pollutants in urban areas. Before using your car ask yourself – do I really need to make this journey? Do I really need to use the car, or could I walk or cycle?
- If you must drive, switch off the engine if you expect to be stationary for more than a couple of minutes, and drive smoothly – it will save you fuel and money and you will emit less pollution.
- Avoid overfilling the petrol tank and spilling petrol as this evaporates and releases hydrocarbons that are toxic and form ozone.
- Buy water-based or low-solvent paints, glues, varnishes, and wood preservatives wherever you can.
- Avoid burning solid fuels if you can.

## UK

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland was published in July 2007. It aims to:

- map out as far as possible current and future ambient air quality policy in the United Kingdom in the medium term;
- provide the best practicable protection to human health and the environment by setting the evidence based objectives for the main air pollutants, and;
- describe the air pollution climate in the UK to provide a framework to allow all those who contribute to air pollution, who have a part to play in its abatement, or are affected by it, to identify their role in improving air quality;
- set National Air Quality Objectives for ten major air pollutants: benzene, 1,3 butadiene, carbon monoxide, lead, nitrogen dioxide, ozone, particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), polycyclic aromatic hydrocarbons and sulphur dioxide to be achieved between 2003 – 2020. These are the same, or in some cases, tighter than EU Directive limit and target values.

The UK is currently meeting the air quality objectives in most parts of the country – up to 99.5% in some cases. Some objectives are more challenging to meet at certain locations, for example nitrogen dioxide, ozone and particulates. The UK is working towards achieving these objectives as soon as possible in the locations where they are still exceeded.

## Europe

The EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC) was transposed into national law in June 2010. The directive consolidated existing air quality legislation, set new standards for fine particles (PM<sub>2.5</sub>), and provides some flexibility for Member States in meeting some existing standards in areas where, across Europe, there has been widespread difficulties in complying.

The target values for ozone for the protection of human health and the protection of vegetation, remain unchanged from the Ozone Directive (2002/3/EC; third Daughter Directive). These are:

- for the protection of human health,  $120 \mu\text{g m}^{-3}$  (averaging period of maximum daily eight-hour mean) not to be exceeded on more than 25 days per calendar year, averaged over three years;
- for the protection of vegetation  $18000 \mu\text{g m}^{-3}$  (1-hour averages) averaged over five years.

Where the target values are not met the UK must put in place plans to achieve them, except where the target values are not achievable through proportionate measures. The Directive also sets long-term objectives for ozone levels for the protection of human health and vegetation with the year 2020 as a bench-mark. The Directive also requires that the public be informed when hourly levels are above an 'information threshold' of 180 micrograms per metre cubed or a 'warning threshold' of 240 micrograms per metre cubed. The UK complies with this requirement.

The target values in the ozone Directive were developed in line with the national emissions ceilings for  $\text{NO}_x$  and VOCs, ozone precursors, set under the National Emissions Ceilings Directive (NECD).

## Policy measures for ozone

Emissions of ozone precursors across the EU are controlled by the National Emission Ceilings Directive which sets limits on the amounts of nitrogen oxides and Volatile Organic Compounds that each Member State can emit annually, with ceilings to be met by 2010. The latest UK emissions data shows the UK to be compliant with its 2010 emission ceilings for all four of the major air pollutants. The UK is currently projected to remain compliant with its ceilings in 2010 and beyond. The 1999 Gothenburg Protocol does the same for a larger group of countries under the auspices of the UN Economic Commission for Europe.

The Gothenburg Protocol is currently under review and is expected to set new emission ceilings to be achieved by 2020. The National Emission Ceilings Directive will be reviewed in 2013 and is also likely to set new ceilings.

Delivery of reduced ozone concentrations in ambient air is challenging due to increasing global background levels, changes in atmospheric chemistry, changing climate (hotter summers) and reduced urban emissions of oxides of nitrogen. Evidence suggests that local or short term measures are ineffective at reducing ozone concentrations. Reflecting this, EU air quality legislation sets targets and long term objectives for ozone concentrations (rather than the legally binding limit values set for pollutants such as  $\text{PM}_{10}$ ) and public information requirements should certain thresholds be exceeded.

## August 2003 and June/July 2006 Summer Smog Episodes

A short report entitled 'An estimate of the health impact of the August 2003 Photochemical episode' by John Stedman at AEA was published on 13 January 2004. This estimated the contribution of ground level ozone and particulate matter ( $\text{PM}_{10}$ ) to the number of deaths brought forward by in the first two weeks of August 2003. The short report is available on the Air Quality Archive Website: [http://uk-air.defra.gov.uk/reports/cat09/0401130931\\_heatwave2003.pdf](http://uk-air.defra.gov.uk/reports/cat09/0401130931_heatwave2003.pdf)

A report on the summer smog episode during June and July 2006 is also available on the Air Quality Archive website: [http://uk-air.defra.gov.uk/reports/cat12/0701241100\\_APF\\_episode\\_JunJul06\\_FINAL\\_low.pdf](http://uk-air.defra.gov.uk/reports/cat12/0701241100_APF_episode_JunJul06_FINAL_low.pdf)

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