

# Sulphur Dioxide

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Sulphur dioxide (SO<sub>2</sub>) is a colourless, nonflammable gas with a penetrating odour that irritates the eyes and air passages. It reacts on the surface of a variety of airborne solid particles, is soluble in water and can be oxidised within airborne water droplets. The most common sources of sulphur dioxide include [fossil fuel](#) combustion, smelting, manufacture of sulphuric acid, conversion of wood pulp to paper, incineration of refuse and production of elemental sulphur. Coal burning is the single largest man-made source of sulphur dioxide accounting for about 50% of annual global emissions, with oil burning accounting for a further 25-30%. The most common [natural source](#) of sulphur dioxide is volcanoes.

Annual mean [concentrations](#) in most major [UK](#) cities are now well below 35 ppb with typical mean values in the range of 5-15 ppb. Hourly peak values can be as high as 750 ppb on infrequent occasions. Natural background levels are about 2 ppb.

The [health effects](#) of sulphur dioxide pollution were exposed graphically during the "[Great Smog](#)" of London in 1952. This resulted in approximately 4000 premature deaths through heart disease and bronchitis. Since then, however, emissions have been significantly reduced through [legislative controls](#) and the introduction of clean fuel technology. Research has shown that exposure for [asthmatics](#) is significantly more damaging than for normal subjects. Even moderate concentrations may result in a fall in lung function in asthmatics. Tightness in the chest and coughing occur at high levels, and lung function of asthmatics may be impaired to the extent that medical help is required. Sulphur dioxide pollution is considered more harmful when particulate and other pollution [concentrations](#) are high. This is known as the "cocktail effect."

[http://www.ace.mmu.ac.uk/eae/air\\_quality/Older/Sulphur\\_Dioxide.html](http://www.ace.mmu.ac.uk/eae/air_quality/Older/Sulphur_Dioxide.html)