

## DO SOLUBLE SECONDARY PARTICLES HAVE A ROLE IN THE TOXICITY OF AIRBORNE PARTICULATE MATTER?

**F.J. Kelly**

*Environmental Research Group, King's College London, London, UK*

Toxicologists are working hard to identify which physical and chemical characteristics of ambient particles are responsible for the detrimental effects identified in a range of epidemiological studies. For primary emissions, particle size, number and surface organic and metal components appear particularly important. For soluble secondary particles, produced within the atmosphere via chemical reactions and dominated by sulphates and nitrates, current information suggests that they have low toxicity, but that particle acidity may have a limited effect on respiratory symptoms when pollution levels are high. This may occur through interactions which can modify the size, chemistry and surface properties of soluble secondary particles which are all likely to have an important influence on their potential to cause adverse effects upon inhalation. Further work into such synergistic effects is needed. Recent epidemiological studies indicate that a threshold concentration of about  $12 \mu\text{g m}^{-3}$  may exist for sulphate particles, below which no effects are likely. In the UK, secondary particle concentrations are generally below this concentration suggesting that secondary particles probably do not have any substantial short or long-term impact on the health of most individuals.