

ENVIRONMENT, IMPACT ON HEALTH OF ULTRAFINE AIRBORNE PARTICLES

567. Mr B.K. Masters to the Minister for Health

- (1) What evidence exists to suggest that ultrafine airborne particles less than 0.1 micrometres in diameter are at least as serious a risk to human health as much larger particles up to PM10 in size?
- (2) Does the Minister agree with the findings of the research report by Wickmann, E. and Peters, A. (2002) published in the *Philosophical Transactions of the Royal Society A*, volume 358, page 2751+ which states that, in the UK, while PM10 levels decreased in the urban environment, levels of ultrafine particles rose?

Mr R.C. KUCERA replied:

1. The assessment of health risks associated with exposure to different size fractions of particulate matter is a relatively new area of health research. There is a growing body of evidence in the literature to suggest that exposures to the smaller particle fraction in the ultrafine size range (less than 0.1 microns diameter) might be associated with chronic health effects.
2. The reference referred does not make the statement attributed to it.

The referred paper presents data from Erfurt, Germany showing a seven year trend for mass concentration of fine particulate matter (0.01 – 2.5 microns: PM2.5) and compares this with the relative number concentration for different size ranges of ultrafine particles. The authors noted that during the seven years of observation the mass concentration of PM2.5 decreased while the number concentration of ultrafine particles between 0.01 and 0.03 microns increased steadily.

These findings are of interest with this area of particulate research likely to have implications for future particulate monitoring in Australia as the technology and methodology becomes more widely available. Current Australian ambient air quality guidelines for particles are based on particle mass. This is because available epidemiological evidence linking particles and health outcomes is based on measurements of particle mass. Some Australian researchers have studied other particle properties, including number concentration.