

## **Tunnels concentrate air pollution by up to 1,000 times**

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A toxic cocktail of ultrafine particles is lurking inside road tunnels in concentration levels so high they have the potential to harm drivers and passengers, a new study has found.

The study, which has been published in *Atmospheric Environment*, measured ultrafine particle concentration levels outside a vehicle travelling through the M5 East tunnel in Sydney.

Study co-author and director of Queensland University of Technology's International Laboratory for Air Quality and Health, Professor Lidia Morawska, said road tunnels were locations where maximum exposure to dangerous ultrafine particles in addition to other pollutants occurred.

"The human health effects of exposure to ultrafine particles produced by fuel combustion are generally regarded as detrimental," Professor Morawska said.

"Effects can range from minor <u>respiratory problems</u> in healthy people, to <u>acute myocardial infarction</u> (heart attack) in people with existing heart complaints.

Professor Morawska said the study involved more than 300 trips through the four kilometres of the M5 East tunnel, with journeys lasting up to 26 minutes, depending on traffic congestion.

"What this study aimed to do was identify the concentration levels found



in the tunnel. It generated a huge body of data on the concentrations and the results show that, at times, the levels are up to 1000 times higher than in urban ambient conditions," she said.

She said drivers and occupants of new vehicles which had their windows closed were safer than people travelling in older vehicles.

"People who are driving older vehicles which are inferior in terms of tightness and also those riding motorcycles or driving convertibles, these people are exposed to incredibly high concentrations," she said.

"When compared with similar studies reported previously, the measurements here were among the highest recorded concentrations," she said.

Professor Morawska said tunnels were becoming an increasingly necessary infrastructure component in many cities across the world.

"When governments are building tunnels for urban design reasons, they should also consider the impact these tunnels are having on the environment and to people's health," she said.

"The study highlights why governments need to consider how they are going to deal with the air pollution levels inside the tunnel and removal of ultrafine particles in the outside environment."

Source: Queensland University of Technology (<u>news</u> : <u>web</u>)

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