

In the Smoke

Major Asian cities such as Manila and Bangkok have a terrible reputation for traffic congestion and environmental pollution. I have noticed that many commuters in these areas cover their noses and mouths with handkerchiefs, and the traffic police are issued with dust masks. Does this actually provide any significant health benefits, or is it simply cosmetic and psychological?

It is highly unlikely that the use of handkerchiefs in this way has any beneficial effects. Only large particles greater than 10 micrometres across are likely to be prevented from entering the respiratory system and these do not cause any health problems. In any case, the very coarse hairs lining the nostrils have a filtering effect and trap these larger particles. To test their effectiveness, if you work in a large city blow your nose at the end of the working day and note the colour. Particles of around 7 micrometres will be restricted to the mouth and throat only and coughed or sneezed out. Particles between 3.3 and 4.7 micrometres will be removed by the ciliary escalator, an effective method of particle removal from the trachea and bronchi, and either spat out or swallowed.

The real concern is particles smaller than 1.1 micrometres, which can cause problems in the lower regions of the lung, where they can damage the alveoli. Wearing a dust mask may prevent this from happening but it would have to be of the right type, fitted properly and cleaned and replaced as necessary. A better option would be for governments to have effective environmental protection measures forcing vehicle manufacturers to use cleaner technology to prevent emissions, and for industry to remove air pollutants at source.