

Chemicals' study pinpoints threat to workers' lungs

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Tiny particles used in a range of everyday products from computers to shampoo can adversely affect the lungs in very different ways, a study has shown.

Research by the University of Edinburgh suggests that industrial manufacturers using nanoparticles should be aware of the risks that different types of nanoparticles pose to workers who handle them.

Nanoparticles – which can be 10,000 times smaller than the width of a human hair – are potentially hazardous to workers handling the chemicals used to make products as they may be at risk of inhaling them.

The particles are not, however, thought to pose any substantial risk once they are incorporated in consumer goods used by the public.

The study, published in *Environmental Health Perspectives*, showed that four different types of nanoparticles produced distinct patterns of [lung](#) injury in rats, some involving the immune system.

Researchers found that some nanoparticles were more likely to trigger an asthmatic-style reaction while others led to a worsening severe lung injury.

The study highlights the need for animal models until there are improved cell-based tests to predict the effects of nanoparticles, since the use of cell cultures alone would not be able to pick up the extent of different

diseases the nanoparticles are likely to cause.

Ken Donaldson, Professor of Respiratory Toxicology at the University of Edinburgh, said: "Nanoparticles are becoming more important in industry and are being used in ever-increasing amounts. This study shows that different types of nanoparticles may produce different diseases in those exposed to them in industry.

"Therefore each kind of nanoparticle needs to be assessed and appropriate care taken to minimise exposure consistent with the risk they pose. This will ensure better health and safety for those working with these new materials."

Provided by University of Edinburgh

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