

What's in Your Air? Lead Exposure Testing with the Aero Select

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CANTERBURY, KENT, UK, October 31, 2018 /EINPresswire.com/ -- Lead is a cumulative toxicant that affects multiple body systems and is known to cause severe health problems, especially to children, and its enduring use in industries such as manufacturing, recycling and even cosmetics continues to be reported each day. Aiming to raise awareness of the public health dangers of lead exposure and reawaken the call to eliminate the use of lead in manufacturing and consumer products, the WHO recently conducted a campaign of International Lead Poisoning Prevention

[\[http://www.who.int/ipcs/lead_campaign/objectives/en/\];](http://www.who.int/ipcs/lead_campaign/objectives/en/)

addressing the estimated 540,000 deaths and 13.9 million years lost to disability and death due to long-term health effects of lead exposure.



Worker in a factory



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Dr Robert Muir - ANCON Technologies

It is with this public health objective in mind that instruments such as [ANCON's Aero Select](http://www.ancontechologies.com/products/aero-select-portable-wide-range-aerosol-sampler/) become vital to researchers in detecting and preventing exposure of this unassuming metal. By identifying previously unknown nanoparticles in order to adapt and improve occupational health measures, the portable, wide range aerosol sampler created by this innovative company has already been successfully used in lead exposure studies, not only providing long-term health benefits to workers but also

saving livelihoods through identification of best practice for financial outlay within the companies at risk of the dramatic effects of this dangerous metal.

Lead is a cumulative toxicant that affects multiple body systems and is particularly harmful to young children. Distributed throughout the body, lead is stored in the teeth and bones, and during pregnancy, it is released from bones into the bloodstream and becomes a source of exposure to the developing foetus. There is no known level of lead exposure that is considered safe. However, lead exposure is detectable and therefore preventable.

Some sources of environmental contamination include mining, smelting, manufacturing and

recycling activities, and, in some countries, the continued use of leaded paint, gasoline and aviation fuel. More than three-quarters of global lead consumption is for the manufacture of lead-acid batteries for motor vehicles. Lead is, however, also used in many other products, such as jewellery, toys and in some cosmetics and traditional medicines. Even drinking water may contain lead when delivered through lead pipes.



ANCON Team in Canterbury

Lead particles range in size and can be deposited and expelled through the respiratory system (mucociliary escalator) but also absorbed straight into the bloodstream. The latter fraction of airborne particles cause the adverse health effects associated with exposure and this is precisely where ANCON's Aero Select is designed to aid the investigation. The unit's size-resolved sampling technique was employed to characterize nanoparticles at workplaces at several plants involved in lead processing with results published in the Aerosol and Air Quality Research (AAQR) journal [<http://www.aaqr.org/doi/10.4209/aaqr.2013.02.0039>].

Aerosol size distributions of lead were obtained across the entire aerosol particle size range from 1 nm to 30 μm . Size distributions were used to calculate the total lead intake due to particle deposition in the respiratory system of workers and it was found that nanoparticles cause the major health risk due to high deposition efficiency and low clearance rate by the upper respiratory system.

Lead exposure can have serious consequences for the health of children. At high levels, lead attacks the brain and central nervous system to cause coma, convulsions and even death. Children who survive severe lead poisoning may be left with mental retardation and behavioural disorders. The neurological and behavioural effects of lead are believed to be irreversible.

Encouragingly, the successful phasing out of leaded gasoline in most countries, together with other lead control measures, has resulted in a significant decline in population-level blood lead concentrations. There are now only 3 countries that continue to use leaded fuel. However, as of 30 September 2018, only 36% of countries have confirmed that they have legally binding controls on the production, import, sale and use of lead paints, showing the desperate need for greater awareness of the dangers of exposure.

Further information:

World Health Organisation Lead Poisoning Fact Sheet: <http://www.who.int/en/news-room/fact-sheets/detail/lead-poisoning-and-health>

ANCON Technologies Lead Exposure Testing: <http://www.ancontechologies.com/air-quality/case-studies/lead-exposure-testing/>

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