

New Technology Assists With Diagnosis of Workers Who Maybe Exposed to Human Carcinogen

TestSafe Australia's Thornleigh Laboratory has added to its state-of-the-art reputation by recently commissioning a new Liquid Chromatograph Mass Spectrometer testing instrument that will enable it to offer the best possible biological monitoring test for workers exposed to potentially carcinogenic benzene vapours.

Benzene is a colourless, highly flammable liquid that has a variety of industry applications. It is widely used in the production of many different types of organic chemicals, detergents, pesticides and paint removers. Benzene is also a significant component of petrol (approx. 5%) and hence is of particular occupational interest to workers and employers in the petroleum industry.

More importantly Benzene is a "category one" human carcinogen and there is sufficient evidence in the scientific literature to establish an association between human exposure to Benzene and the development of cancer. The NSW Occupation Health and Safety Regulation, 2001, specifies that an employer must provide health surveillance for employees who are exposed to hazardous substances such as Benzene, if there is a risk to the health of those employees. Acute Benzene exposure is known to interfere with the human body's central nervous system while chronic exposure can cause leukaemia, which is a form of cancer of the blood.

Using this state-of the art technology we can now monitor for S-Phenylmercapturic acid (PMA) in the post-shift urine samples of workers. PMA is a breakdown product or metabolite of benzene. Detecting high or moderate levels of PMA in these urine samples is a good indicator of recent exposure to benzene vapours. For this test 50ml of urine is needed to be collected at the end of a work shift and not much later. This is because workers, who inhale or absorb some benzene, will pass the benzene out of their body in a matter of hours.

The new PMA test devised by TestSafe replaces a previous test known as the muconic acid test, and is now becoming recognised as a more specific and reliable biological marker of exposure to benzene. The new mass spectrometer is now capable of detecting down to a minuscule 2 micrograms of PMA per litre of urine.

This is the first time that the PMA test has been offered as a routine test by an Australian Laboratory and continues TestSafe's quest to achieve the most accurate and reliable biological monitoring for exposure to carcinogenic substances.



John Tan (DPO) at TestSafe's Thornleigh Laboratory using the new Liquid Chromatograph Mass Spectrometer (or LCMS)

For more information email TestSafe's Chemical Analysis Branch at lab@workcover.nsw.gov.au

TestSafe Scientist Recognised by Industry

At the recent National Conference of the Australian Institute of Occupational Hygiene, TestSafe Chemical Analysis Branch Manager, Robbie Geyer, was appointed to the distinguished position of Fellow. He is the first ever WorkCover employed Occupational Hygienist to be so appointed and is currently one of only five from New South Wales.

The Institute's President John Edwards cited Robbie's research work in developing new analytical tests and his two decades as Manager of WorkCover's Thornleigh Laboratory in providing industry-based occupational hygienists with workplace sampling advice for chemical hazards.



Apart from producing a large volume of scientific publications (39) he has also represented hygiene interests as chair of NATA's Occupational Hygiene Group, and as Chair of Standards Australia Committee CH-031 which focuses on methods for examination of workplace atmospheres.