

MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA

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Major advance in bomb detection by UTAS team

University of Tasmania researchers have developed new screening technology which can detect a homemade bomb in less than 60 seconds.

The project involves a research team coordinated by Assoc Prof Greg Dicinoski and Assoc Prof Michael Breadmore of the Australian Centre for Research on Separation Science (ACROSS), based in the university's School of Chemistry.

The team have received \$3.5 million over the past seven years to develop a range of technology to detect and identify explosives.

The screening technology, Scantex™, can detect inorganic compounds such as ammonium nitrate, potassium chlorate and potassium perchlorate – common ingredients in homemade improvised explosive devices (HMEs) – much faster than the technology currently used in mass-transit applications.

“It is not intended just for airports and mail-handling centres,” Assoc Prof Dicinoski said. “You could use it to screen people going into concerts, or into sporting events.”

Scantex's speed, accuracy and portability also offer potential military benefits. IEDs in the form of roadside bombs are the major cause of casualties among American, Australian and other allied forces in Iraq and Afghanistan.

“This technology you could install in a Humvee or a mobile laboratory,” Assoc Prof Breadmore said. “You could also take it to clandestine explosive labs and analyse samples on the spot, to determine what a substance is before you attempt to dispose of it.”

ACROSS researchers began working in the explosives field about seven years ago. Their expertise prompted an approach from the Australian Government to develop high-speed, precision screening technology.

Scantex originated from an Australian Research Council Linkage project which brought together ACROSS and eight collaborators – the Australian Federal Police, Tasmania Police, Victoria Police, the National Institute for Forensic Science, the Australian Customs and Border Protection Service, Forensic Science South Australia, the Federal Office of Transport Security and an instrument company, Dionex Australia.

“The Linkage project was designed to look at the development of rapid instrumentation for the screening of inorganic, improvised fertiliser-type explosives,” Assoc Prof Dicinoski explained.

“It would supplement existing screening systems at ports of entry into a country – such as airports and mail-handling centres.

“Current technologies are in the main tuned for organic high explosives - the military-type explosives such as TNT and C4/Semtex.

“We set it up as a two-barrelled approach – a fast screen on the front end which would do a sub-30 seconds analysis – and we got pretty close, we got 40 seconds. That’s now the subject of a provisional patent application.

“With a positive hit the sample is transferred to a complementary system which uses Ion Chromatography to confirm the analysis within five minutes,” Assoc Prof Breadmore detailed.

The team comprises Assoc Prof Greg Dicoski, Assoc Prof Michael Breadmore, Prof Paul Haddad, Prof Emily Hilder and Assoc Prof Robert Shellie, supplemented by Dr Gustavo Blanco-Heras and Mr Yi Heng (Ryan) Nai.

Multiple inventive aspects of the Scantex technology are the subject of an Australian provisional patent application.

The University’s research commercialisation partner, UniQuest Pty Ltd, is working with the ACROSS researchers to find a commercial partner and to help prepare the Scantex technology for a global launch.

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