

Instant steam takes on MRSA

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A method for making instant steam, without the need for electricity, promises to be useful for tackling antibiotic resistant ‘superbugs’ like MRSA and *C. difficile*, as well as removing chewing gum from pavements and powering environmentally friendly cars, reports Nina Morgan in *Chemistry & Industry*, the magazine of the SCI.

‘The value of instant steam lies in creating truly portable steam that can be generated intermittently on demand,’ says Dave Wardle, business development director at Oxford Catalysts.

The company is already in talks with UK specialist steam supplier OspreyDeepclean about possible applications for steam cleaning hospitals, Wardle adds. An as-yet unpublished 2006 study at University College London Hospital, commissioned by OspreyDeepclean, showed that dry steam applied at temperatures ranging from 150 to 180 C could destroy bacteria, including MRSA and *Clostridium difficile*, in less than two seconds, without the use of chemicals.

The new technology, devised by scientists at UK firm Oxford Catalysts, employs a precious metal catalyst to generate the steam at temperatures up to 800 C in just a couple of seconds, at room temperature and pressure. Steam produced by the technology is so-called ‘dry’ steam, generated by the highly exothermic reaction between methanol and hydrogen peroxide. While too expensive to replace the vast quantities of steam used routinely by industry, a reaction chamber the size of a sugar cube can pump steam at a rate of 7L/minute at temperatures up to 800 C.

The first application is likely to be a GumBuster backpack for removing chewing gum from pavements and other surfaces. The patented GumBuster technology currently requires a minimum of 3kW of electrical power to generate the steam used by each operator and relies on generators carried on trolleys or vans. Use of the catalyst technology ‘will make the system more portable and make it possible to place the steam when we need it, where we need it,’ says Thomas Stuecken, chief commercial officer at Proventec, the parent company of OspreyDeepclean.

Other more speculative applications for the steam for powering rockets and cars, and to provide mobile and portable power generation, are currently being considered.

Source: Society of Chemical Industry

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