

# World first nanotechnology to revolutionise oil production

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Nanotechnology to help extract more petrol from oil fields has been developed by researchers from The University of Queensland's Australian Institute for Bioengineering and Nanotechnology (AIBN).

With oil companies forced to leave behind as much as two barrels for every barrel of oil they produce, this revolutionary technology could help reduce the cost of supplying petrol to the market.

Known as Pepfactants®, the peptide technology can control the emulsions and foams used in a wide range of industry processes and could impact a range of products from petroleum to specialty chemicals and therapeutic drugs.

Developed by Professor Anton Middelberg and Dr Annette Dexter, details of the technology were published recently in the prestigious *Nature Materials* journal.

According to Professor Middelberg, Pepfactants® is a disruptive technology with the potential to be used in ways we cannot yet foresee.

“Emulsions, or mixtures of two immiscible liquids like oil and water, are found just about everywhere from mayonnaise to moisturising cream to products for delivering chemotherapy drugs,” Professor Middelberg said.

“Our process enables the reversible and controllable making and

breaking of an emulsion or foam, in an environmentally friendly and sustainable manner. For example, Pepfactants® allows for the very quick separation of oil and water as well as the reversible reformation of the emulsion.

“An obvious application of the technology is in oil production where water is used to force oil to the surface of the well. Pepfactants® would allow the easy separation of the oil/water emulsion on the surface. Also, it would change the viscosity of the oil to increase the amount of oil extracted from each underground oil reserve.”

Pepfactants® also recently won an Emerging Technology Award at the TechConnect Summit 2006 Conference in Boston and is the subject of wide industry interest.

UQ's main commercialisation arm UniQuest Pty Ltd plans to licence the technology into a start-up company and is actively seeking both investment and strategic product development partners in Australia, Europe and the US.

Managing Director of UniQuest David Henderson said they would initially target biocatalysis, surfactants and oil and gas as the initial areas for industry exploitation.

AIBN is Australia's first fully integrated research institute to take a multidisciplinary approach to understanding and exploiting nanostructures, the genetic basis of cell activity and opportunities at the interface between bioengineering and nanotechnology.

Source: University of Queensland

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