



Loughborough  
University

A breakthrough that is set to radically reduce emissions of nitrogen oxides from diesel engines secures the Technological Innovation of the Year title for Loughborough University.

Researchers at the institution sought to tackle the problem of selective catalytic reduction (SCR) systems. This emissions control technology is typically employed in diesel vehicle engines, but it is ineffective at exhaust temperatures below 250°C because in such circumstances AdBlue, a liquid that is added to SCR systems, creates deposits that can block exhausts and damage engines.

The innovation was to use waste exhaust heat to transform AdBlue into a new solution that produces ammonia even at low temperatures, allowing the SCR system to function throughout engine operation. Because this solution enables more effective removal of nitrogen oxides, it allows engines to operate efficiently at lower temperatures, meaning greater power and fuel economy.

Following the research conducted in 2015-16 and the release of the findings, Loughborough has been receiving a weekly stream of enquiries from manufacturers about the technology, known as ACCT.

The potential impact is huge: exposure to nitrogen oxides and particulate matter emissions has been linked to about 52,000 additional deaths a year in the UK.

The judges said that they were looking forward to the technology “making a difference to all our lives”.

“Scarcely a day goes by without a report of increasing pollution from diesel engines and the health problems that it causes in our cities,” the panel said. “Loughborough’s innovative solution, producing a technology to pretty much remove the worst of it, along with clear technology transfer plans, impressed the judges.”