

## Business

# Econic process turns CO<sub>2</sub> into green plastic

Peter Cunliffe

Scientists have spent decades trying to turn waste carbon dioxide into a raw material that could be used to produce plastics and now a British company has announced a breakthrough.

Converting the greenhouse gas into one of the building blocks for polyurethane could herald a new age for plastics used in a wide range of products including running shoes, car seats, mattresses and building insulation.

Econic Technologies has developed catalysts that allow CO<sub>2</sub> to be used to produce polyols, which are one of the building blocks of polyurethane.

Not only is CO<sub>2</sub> cheaper than the oil-based raw materials used in production methods, its use also reduces danger-

ous emissions. Although it is produced in vast quantities by industrial processes, it is highly unreactive, which has made it difficult to use to produce a feedstock for polymers.

Econic said its technology was a gamechanger and it estimated that if it were used in 30 per cent of polyol products by 2027, it would save 3.5 million tonnes of CO<sub>2</sub> emissions each year, equivalent to taking two million cars off the road. It hopes the saving could eventually reach 18 million tonnes.

The company, based on the Manchester Science Partnership's Alderley Park site in Cheshire, said that its process had a big advantage for manufacturers because it was "tunable".

Rowena Sellens, chief executive, said: "The positive potential for businesses

and the planet provided by Econic Technologies' catalysts is huge — and so are our ambitions.

"As the tunable catalyst moves out of the lab and into mainstream use, we are aiming to work with our customers to totally transform polyurethane manufacturing, making it greener, cheaper and safer. There aren't many ways to put a green label on polyurethane."

For every tonne of CO<sub>2</sub> used in the process, another two tonnes are saved in the production of the petrochemical alternative. "It won't cure the world's CO<sub>2</sub> problems, but it can take a big bite out of that particular challenge," she added.

The polyol market is worth £15 billion a year and Dr Sellens said that by using Econic's catalyst, producers could cut

the cost of feedstock. For a typical production plant with an output of 50,000 tonnes per year that would generate annual savings of £36 million and help manufacturers address growing regulatory pressures.

Dr Sellens said: "People are truly interested in the environmental aspect of it but their willingness to take the risk of adopting new technology is highly lubricated by the fact that there is a strong economic argument as well."

Econic is working with partners in the chemicals industry on commercialising the process for use in polyurethane but longer term sees other uses such as thermoplastics and lubricants.

Econic was founded in 2011 by Charlotte Williams, who led a team of scientists at Imperial College London

and laid the groundwork for the catalyst technology. She is a professor of inorganic chemistry at the University of Oxford and remains a director of the company, which moved to Cheshire in January and employs 26 people, mainly scientists and engineers, including 13 with PhDs.

Financial backers include Touchstone Innovations, formerly Imperial Innovations, Jetstream Capital of the US and Neil Woodford's Woodford Investment Management.

Another round of fundraising is planned this year and long-term options include a sale or stock market listing, but Dr Sellens emphasised: "The ambition and focus is on growing a sustainable company rather than looking for a quick exit."