

WHISKY BY-PRODUCTS USED TO PRODUCE BIOFUEL TO POWER CARS¹

Scientists say they have created a new biofuel made from whisky by-products which could be used to help power cars currently on the road. Edinburgh Napier University has filed a patent for the product, which can be used in ordinary cars without any special adaptations, scientists said. The biofuel has been developed over two years by the university's Biofuel Research Centre. As part of the research the centre was provided with samples of whisky distilling by-products from Diageo's Glenkinchie Distillery in Tranent, East Lothian.

The Edinburgh Napier Biofuel research team focused on the £4bn whisky industry as a ripe resource for developing biobutanol – the next generation of biofuel which gives 30% more output power than ethanol. It uses the two main by-products of the whisky production process – ‘pot ale’, the liquid from the copper stills, and ‘draff’, the spent grains, as the basis for producing the butanol that can then be used as fuel. With 1,600 million litres of pot ale and 187,000 tonnes of draff produced by the malt whisky industry annually, there is real potential for bio-fuel to be available at local garage forecourts alongside traditional fuels.

Unlike ethanol, the nature of the innovative bio-fuel means that ordinary cars could use the more powerful-fuel, instead of traditional petrol. The product can also be used to make other green renewable bio-chemicals, such as acetone. The university now plans to create a "spin-out" company to take the new fuel to the marketplace and leverage the commercial opportunity, in the bid to make it available at petrol pumps..

Professor Martin Tangney, who is leading the research and is director of the Biofuel Research Centre, said:

"The EU has declared that biofuels should account for 10 per cent of total fuel sales by 2020. We're committed to finding new, innovative renewable energy sources. The new biofuel is made from biological material which has been already generated. Theoretically it could be used entirely on its own but you would have to find a company to distribute it. The most likely form of distribution of the biofuel would be a blend of perhaps 5 per cent or 10 per cent of the biofuel with petrol or diesel but 5 per cent or 10 per cent means less oil which would make a big, big difference. This is a more environmentally sustainable option and potentially offers new revenue on the back of one Scotland's biggest industries. We've worked with some of the country's leading whisky producers to develop the process."

The £260,000 research project was funded by Scottish Enterprise's Proof of Concept programme. Lena Wilson, chief executive of Scottish Enterprise, said:

"This pioneering research is testament to Scotland's world-class science base and demonstrates how Scottish Enterprise helps to transform cutting-edge knowledge into successful new high-growth sustainable businesses for Scotland. By proactively taking innovative ideas from the laboratory to the global market place, Scotland can continue to compete at the highest level and successfully boost its economic recovery."

¹ Sources: (1) Telegraph.co.uk, August 17, 2010; (2) Edinburgh Napier University Press release, August 17, 2010; (3) Care2, Healthy & Green Living, Jake Richardson, August 20, 2010

Jim Mather, the Scottish Government's energy minister said:

"This is an innovative development, and I am delighted to see Edinburgh Napier University once again display its expertise in this field by bringing this biofuel to market. I support the development and use of sustainable biofuels. This innovative use of waste products demonstrates a new sustainable option for the biofuel industry, while also supporting the economic and environmental objectives of the Scottish Government's new Zero Waste Plan. In these challenging economic times we need to play to our strengths and take advantage of the low carbon opportunities of the future. It's exactly this type of innovation that will help sustain economic recovery and deliver future sustainable economic growth."

Dr Richard Dixon, WWF Scotland's director, said:

"Scotch whisky is world-renowned and one of Scotland's biggest exports, so it is great to see plans that could not only help power the cars on our roads and reduce fossil fuel emissions but also help reduce the environmental impacts of the industry itself. The production of some biofuels can cause massive environmental damage to forests and wildlife. So, whisky-powered cars could help Scotland avoid having to use those forest-trashing biofuels. Last year the whisky industry published plans to help lower its impacts and it is clear that this scheme could assist them in doing just that. Since the whisky industry relies on Scotland's clean environment for its main ingredients it would be great if the industry could help Scotland reduce its emissions from road transport."

Producing more biofuels is part of the effort by European Union countries to reduce their impact on climate change. The EU has set a goal of having ten percent of all fuel sales be biofuels. Biofuels typically are made from plant sources like corn, sugar cane, or soy beans and rapeseed. The technology for developing bio-fuel from whisky was inspired from a 100-year-old process, created by Chaim Weizmann, a refugee chemist in Manchester who studied the butanol fermentation initially as part of a programme to produce rubber synthetically. The process was then used in explosives manufacture and helped win both WWI and WWII.

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