

## Scots firm cooks up interest with giant microwave

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A SMALL Scots technology firm has pulled off a move that could revolutionise the food industry by designing the world's largest microwave cooker - the size of a car.

The new microwave is far more eco-friendly than existing methods by using less energy to cook but also keeps more nutrients in the food. It is hoped it will be a particular boon to developing countries.

Advanced Microwave Technologies, based in Grangemouth, is working in collaboration with Edinburgh's Queen Margaret University (QMU), and hopes to introduce the technology to commercial firms that use large-scale cooking for food products.

The technology is so promising that the university has set up a test centre using a smaller, more portable version for retailers to try out the technique.

Douglas Armstrong, managing director of AMT, said some "very serious retailers" were currently looking at the technology.

"Some of the multiple retailers are looking at the technology and are getting excited about it. It ticks all the boxes for them - it reduces energy costs, reduces labour costs, and allows you to improve the quality of the food that's being produced."

Current commercial cooking methods, which involve cooking foods such as sauces, fruit juices, jams, eggs, custards, and vegetables in batches in pots and ovens, use inefficient steam systems that require extensive cleaning and can cause considerable damage to the nutrient content, flavour and colour of the food.

The new AMT system works by delivering microwave energy - electromagnetic waves that transfer their heat energy when passed through liquids and semi-solids - directly and evenly into any material being pumped continuously through a microwave transparent pipe.

The unique system, known as 'microwave volumetric heating', not only cooks the food more quickly and more efficiently, but retains nutrients better as well.

"It's completely different to a (domestic) microwave oven because we use a tube, which allows waves to penetrate the entire volume of the liquid, rather than just to a certain depth."

A range of trials, carried out at QMU, have demonstrated that the equipment can be used on a wide variety of food products, from semi-solids such as cooked sausage to fluids like tomato sauce.

Armstrong and his team are particularly excited about the machine's effect on fruit juice - a development which could increase the quality of pasteurised fruit juice regularly seen on supermarket shelves.

"The food industry is more and more interested in trying to maintain all of something's components, while giving it a shelf life - things like flavours, colour, vitamins and anti-oxidants. And people are trying to work out how we can preserve those and keep them as fresh as possible.

"We discovered that the machine was killing micro-organisms very efficiently, which means reducing pasteurising and sterilising times. And because of the way the energy is going into the liquid it's a much more gentle process."

Armstrong and the QMU team then ran a test on fruit juice. "What we discovered is that the fruit juice pasteurised in our machine tastes exactly the same as fresh. The anti-oxidants and vitamins are exactly the same as you would find in fresh fruit juice."

Dr Sue Gordon, food and drink business development manager at QMU, said the breakthrough could have a huge impact.

She said: "Any version of cooking that keeps the nutrients in better will improve the quality of the population's diet. If they can get fruit juice like this, which is like eating raw fruit itself, that will have a quite a big impact on increasing the nutrient quality and diet of the population as a whole."

Armstrong and his team believe this may just be the beginning. "Anybody who is involved in food processing on a large scale or pasteurisation of juices in bulk should be interested in looking at this product," he said.

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To view the system producing scrambled egg, visit: <http://www.bestpump.co.uk/microwave>