

NOT JUST HOT AIR

Many companies reckon to be able to aid processing, cut costs and improve end products, however, only once in a while are claims backed up with proof. Here, Andy Clutton introduces one such case, Torbed

processing advantage is a popular one. The process has also led to the development of more consistent products in areas such as the vegetable processing industry, and improved the pasteurisation of spices.

Snackfoods

Most products available in the snack industry are either fried or cooker extruded before being dusted with oil and flavours. A trend toward lower fat products, particularly based on expanded 'half pellet' products. Newer 'half pellet' products absorb less oil when fried (around 20 percent compared to nearer 40 percent). The Torbed is capable of expanding these products in hot air producing an oil-free based product which can then be flavoured with minimal oil addition.

"The process has shown itself to produce a lighter and more stable product at a lower energy consumption rate," confirms Paul Gamble.

Vegetable bloating

Where vegetables are to be dried and subsequently rehydrated in instant soups and dried meals, it has been found that a more readily rehydratable product is achieved if the vegetable pieces are puffed in a hot air stream during the stages of drying. This causes the cell walls of the vegetable matter to be ruptured allowing rapid ingress of water.

"We have carried out pilot trials in this area," explains Paul Gamble. "Resulting in the installation of a plant for product development trials on a variety of vegetables."

Pasteurisation of spices

"With gas treatment being banned within the EC and irradiation not currently used in the UK due to adverse publicity," says Paul Gamble. "The herb and spice industry is left with the option of heat/steam treatment processes. Following a trial period with a UK spice company reports show that a single operator can process, for example, up to 280Kg per hour of Sarawak Black Pepper with a total energy cost of 40kW per hour."

Paul Gamble believes that the already proven benefits of the systems coupled with reduced running costs gives his process advantages over conventional equipment and opens up opportunities for new product development in the food industry.

This kind of talk is common for those trying to promote their equipment, however, you can't help feeling that there is more to this technology than just hot air. □



One of the applications of Torbed technology is the processing of spices, seen here at East Anglian Food Ingredients in Essex

In short, the patented Torbed hot air system suspends a gentle rotating bed of free flowing food particles above a ring of static vanes through which high velocity hot air is directed. Thus, a rapid heat transfer from air to particles is achieved with the whole surface of each particle being uniformly heated.

This rapid heat transfer system is now in daily use in over 70 different applications around the world and, according to Paul Gamble, managing director of Torbed Services in Reading, there are many further applications which could benefit from the process.

"The technology provides a new approach to roasting, toasting, expansion, sterilisation and heating processes in general," he says. "Manufacturers in many applications have also seen additional benefits to their end products over conventional systems. The technology can also deliver higher yields from certain types of foodstuffs such as roasting coffee and cocoa beans."

Conceived in 1982, primarily for the mineral industry, the process is a novel method of processing particles. Materials to be processed are suspended in a well ordered bed formation by the swirling gas stream. Where the underside of the bed is exposed to the high velocity impact of the gas stream leaving the blades, a condition of high turbulence exists which dramatically increases the heat transfer rate in the process.

The individuality of the system is due to the toroidal bed concept (from which the name Torbed is derived) which exposes all of the bed material to conditions at the bed base.

"If the underside of the bed were the only part to be exposed to the desired conditions, the processing of the material would be uneven," continues Paul Gamble. "Causing the bed to flow in a toroidal, doughnut shaped manner ensures that the material achieves optimum processing conditions."

One of the sectors of the food industry which has seen the benefits of the system is snack foods. With a per capita consumption rate of snacks within the UK of 5.2Kg in 1995 any

For further details of the Torbed systems telephone: 01734 811255