

# Maple Leaf Bakery

Marco Limited have installed the first stage of a Trac-IT MES weighing and traceability system, with the implementation of their Recipe Formulation Module, for Maple Leaf Bakeries at their new plant near Rotherham. The Trac-IT system plays a key role in Maple Leaf's Six Sigma 'doing things right' philosophy at the site, focussed on quantitatively understanding and consistently meeting critical customer needs by minimizing waste throughout the entire value chain.

Canadian owned Maple Leaf make bagels at the site - lots of them! With a capacity of over 60,000 fresh and frozen bagels an hour, the company is Europe's largest producer of this iconic American snack, supplying all the major supermarkets and retail outlets with private and New York Bagel Co branded goods.



## The System

Trac-IT MES starts work when goods arrive at the stores. Here all raw materials are checked in against outstanding orders and labelled. The system automatically checks that the supplier is approved and that the use by date is appropriate. The system generates a barcode for each individually packed product and pallet module. Stacked items are stored in 'use by' date order so that the products for current use are at the bottom of the racks as part of the strict FIFO (First In First Out) regime. Any deboxing is recorded within the system ensuring a traceability continuum, throughout.

Bagels are made from unbleached, protein rich, high gluten flour, lightly seasoned with a range of ingredients including special flours, malt, salt, sugar and yeast. The base flour and water are supplied to the mixer in bulk but the smaller amount of 'special' ingredients, which determine the bespoke nature of the dozens of different bagel types for specific customers, are weighed out by hand.

Dry ingredients are moved around the plant in permanently numbered and barcode labelled mobile bins, which act as individual traceability modules. An important part of the overall process relates to certain key ingredients which must be sieved on-site prior to recipe make up. The Trac-IT system highlights these products, together with the necessary sieve sizes and does not allow the product to be used until this has been carried out and recorded.

The additional dry ingredients for a particular batch are made up into sub mixes in the main recipe room using the two DataMaster workstations where the whole process is based on a check-control-measure regime.

The DataMaster industrial PC screens provide clear prompts, which guide the operators through the recipe process ingredient by ingredient. Works orders downloaded to the station identify batch sizes for a particular mix together with target ingredient weights.





Before each ingredient can be added, its bin is scanned. The system checks that the correct one has been selected and that it has the shortest use by date, again checking, where applicable, that sieved products are being used. An important feature of the screen is the dynamic coloured bar graph, which changes from amber through to the green acceptance zone as product is added to the bin on the scale. As the weight approaches the preset target, the graph expands to allow optimum dosing accuracy. If the operator adds too much product, the graph changes to red and the operator cannot progress without supervisor intervention. After each ingredient has been added, the system resets to zero and the process starts again.

The completed sub mixtures now progress to the main mixing room. Here the system lists the bins required for a particular mix, ensuring that all relevant bins are collated and added. Additional workstations installed here are used for weighing out wet ingredients including oils.

Waste monitoring is a key part of the process for Maple Leaf and the Marco system keeps a close eye on waste and any permissible rework, recording data throughout the process including final packing.

## The Future

The next stage of the project will integrate the bulk flour and water weighing systems as well as further integration with Maple Leaf's ERP software system. As Charlotte Wood concludes: *"The current installation is already bringing measurable improvements to our process and has initiated an important traceability chain. We are confident the completed Trac-IT MES (Manufacturing Execution System) will further ensure that the factory floor data is optimised in real time to provide a dynamic measure-control-improve environment. This will continue to minimise waste through spoilt or inconsistent batches and optimise equipment efficiency."*

For over 25 years Marco has delivered competitive advantage to market leaders through the installation of over 350 factory efficiency systems worldwide. From pharmaceuticals to foodstuffs Marco has made the difference between good and great performers.

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