

SPICING THINGS UP

Edward B. Beharry & Co. Ltd. utilizes unique mixer and mills to spice things up

With over 30 years of continued success with Kemutec fine grinding and sifting equipment, the Edward B. Beharry & Co. Ltd. returned to Kemutec to refit their Georgetown, Guyana plant. Seeking ISO accreditation for their spice manufacturing process, they needed to automate and modernize their existing plant equipment while maintaining their high quality finished products.

Edward B. Beharry & Co. Ltd. has manufactured fine spices since 1935. They are a traditional, family owned company whose reputation has made them one of the Caribbean's leading companies. Three generations of the Beharry family now manage the conglomerate of manufacturing, insurance, automotive sales and financial services. They are guided by a tradition of quality and excellence and hold high standards in all their manufacturing and services. Their food manufacturing operation already holds the official Caribbean Authentic Seal and ISO 9001-2000 Quality Management System certification for their confectionary line.

Beharry contacted Kemutec to update their

existing machinery for their Curry spice manufacturing process to new Kek and Gardner equipment while maintaining their existing process. Curry spice is a combination of some 10 or more different spices blended to make the unique flavor of an individual Curry recipe. The existing system required the separate grinding and sifting of an array of spices then the blending

of these spices together in a stand-alone mixer to produce the Beharry quality Curry powder.

The existing process was labor intensive, dusty, hazardous and conducive to spills resulting in lost product. It was imperative to Beharry that they, in updating their manufacturing process, maintain color, taste, texture and identical appearance in their final product. They

built their reputation as a leader in manufacturing quality food products by upholding strong quality assurance and consistency in all their manufacturing processes.

After a site visit and consultation with Beharry



at their Georgetown, Guyana plant, Kemutec proposed a new innovative manufacturing process, which included the pre-mixing of the individual spices before grinding. To demonstrate the effectiveness of the new system, Kemutec conducted test trials of the new process at their Bristol, Pennsylvania Technology Center. The new system proposed improved production, safety and efficiency. The test trials confirmed the improvements while maintaining crucial particle size distribution, flavor and characteristics of Beharry's Indi and Raja Curry Powders.

The comprehensive system designed and engineered by Kemutec begins with pre-mixing all the individual spices in a Gardner 1250HE Ribbon Blender. The blended spices are conveyed to a Kek 2H Universal Mill for grinding. The ground spices are then sifted through two Kek K800C Centrifugal Sifters to confirm the grind profile. The in-spec product is conveyed to a post-grind Gardner 1250HE Blender for final homogenizing, while any oversize product is recycled back to the Kek 2H Universal Mill for further grinding and eventual post-grind blending. The homogenized batch recipe is then transferred to the packing equipment via screw conveyers.

The new system incorporated easy cleaning between major recipe changes. Where possible, all machines were designed with large and simple safety interlocked access doors, allowing operators to clean the internal contact surfaces. The result provided Beharry with considerably less down time due to cleaning.

Also incorporated is a Recipe Driven Control System, which automates the ingredient selection and confirms the recipe for each batch. The Recipe Driven Control System includes a Programmable Logic Controller (PLC) with a Human Machine Interface (HMI) touch screen. The HMI allows for the identification of a particular recipe and ingredients required for that

recipe. It then displays the quantity of each ingredient required. This allows the operator to charge the pre-mixer with the required ingredients and confirm the addition while providing an electronic record for each batch. The PLC controls the passage of each batch from the pre-mixer through the mill, sifters, milling recycle and post blend processes before the transfer to the packaging equipment. In addition, the PLC allows for multiple recipe batches with the concurrent passage of different recipes through the system. This can be as many as four different recipes in the system at one time. In addition to the operation and control of the milling equipment motors and instruments, the PCL controls such parameters as mixing time and grinding mill speed.



With the installation of the new system, Beharry immediately noticed a dramatic increase in output and a significant reduction in manual labor. The new system shortened the manufacturing process while providing a consistent, quality product. Its unique easy clean design also provided shorter down time between recipe changes while the Recipe Driven Control System allowed for exact repeat of the

different Curry recipes produced in the plant.

As remarked by Raymond Ramsaroor, Production Executive, "we (Beharry) find the new system to provide much more control and consistency. We would have found it difficult to secure ISO 9001-2000 registration without this new system" provided by Kemutec. END



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