

Kemutec Helps Make the Biscuit

The sterling performance of their original Kek sugar grinding mill led Horizon Biscuits back to Kemutec for its replacement. The new model 3H Kek Universal Mill has been in operation for 2 years now and Site Engineering Manager, Howard Baker, reports that it has given total satisfaction. In fact, the mill is the heart of a complete milling package supplied by Kemutec — incorporating a sack tip hopper, conveyors, collection hoppers, metering feeders, keg filling station and associated air filtration equipment, complete with explosion relief.

Horizon Biscuits manufacture a large variety of biscuit types including chocolate chip cookies, chocolate sandwich and shortcake. Around 30% of their output is marketed under their own Maryland, Lyons and Cadburys licence brand names. The remainder are own-label products for all the major retailers.



The Complete Milling Package includes a sack tip hopper, conveyors, collection hoppers, metering feeders, keg filling station and associated air filtration equipment., complete with explosion relief.

www.KemutecUSA.com
215-788-8013

Sugar is an important ingredient of biscuits. Horizon buys large quantities of granulated sugars of which a significant proportion is ground to icing sugar specification in the Kek Mill prior to use. It is more cost effective to undertake the size reduction process on site than to buy icing sugar. In line with all other big users, Horizon adds the anti-caking agent Tri-Calcium Phosphate to their sugar to help ensure the consistent quality of their biscuits. For many years now, Kemutec have demonstrated that the ideal way to add minor additives to sugar is during the milling process. Not only does the mill effectively carry out the size reduction task, it acts as a highly efficient mixer producing a homogeneous dispersion of Tri-Calcium Phosphate. Thus, the need for an additional mixing process is eliminated—as is the capital cost of a mixer! The Tri-Calcium Phosphate is metered at a rate of 1% of the throughput rate. It is introduced into the mill inlet, via a metering feeder, together with the sugar and filtered air. Air, drawn into the mill by the high-speed turbine, carries product through the mill and also acts as the cooling medium. The speed of the metering feeder auger is continuously adjusted to maintain the correct percentage of Tri-Calcium Phosphate. This product is delivered to the metering feeder buffer hopper by a spiral type conveyor from the sack tip unit.

The granulated Sugar is supplied from externally sited silos via a pneumatic transfer system to a buffer hopper above the mill. A rotary valve ensures the optimum feed rate into the mill. Milled sugar, complete with its anti-caking agent, is vacuum conveyed into hoppers above a keg filled station. Sugar is metered through a volumetric feeder into one of two kegs positioned on weigh scales. As one keg is filled to the required weight, flow is switched to the other keg, and so on, enabling the milling to be a continuous rather than a batch process.

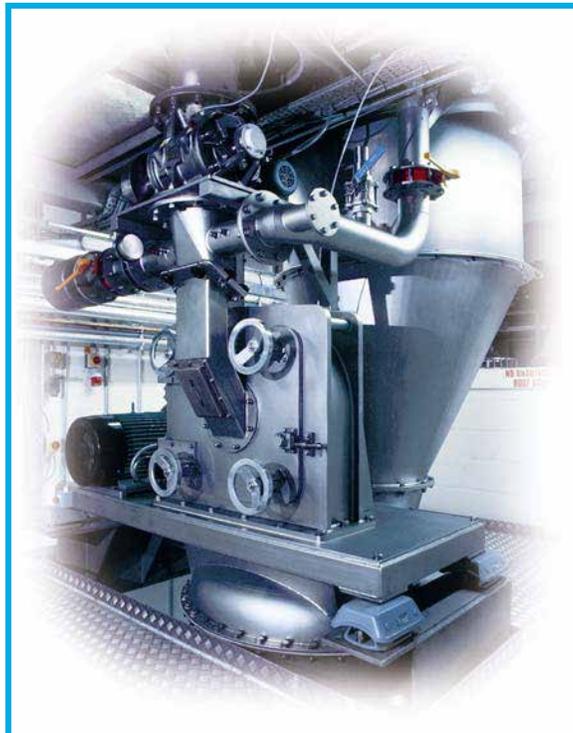
As Kemutec's Russ Alt explains, "Horizon's original Kek 3H Mill had been in operation since the early

'60's. Traditionally sugar was milled using pinned disc grinding media. It was noisy by comparison with modern mills and it wasn't designed to meet the close particle size distribution demanded for today's sophisticated biscuit products." Horizon's Howard Baker picks up the story, "The catalyst for the new mill was the need to add the Tri-Calcium Phosphate anti-caking agent. The location of the original mill was too tight to accommodate the additional equipment required. Once we'd decided to relocate the mill to a larger space on the top floor, and to build a penthouse above to accommodate the buffer hoppers and their associated filtration systems, it became clear that the way forward was to upgrade the whole system. This is when we turned to Kemutec—the milling experts."

The new mill is fitted with a turbine and screen grinding medium. This is much quieter in operation and produces icing sugar with the narrow particle size distribution required. As Howard Baker continues, "Probably through over-zealous feeding of the old mill, to meet demand, we used to experience 'caramelization' of the sugar. This was due to over-heating of the sugar because the air-to-sugar ratio became insufficient to keep the mill cool. Cleaning the caramelized sugar from the

mill only added to the pressures of keeping up with demand. The new milling system more than meets our demands and this problem has been eliminated."

Of all the companies, world wide, offering size reduction equipment, Kemutec has one of the longest histories, best respected pedigrees and instantly recognized brand names in the business. Its Kek range of Grinding Mills has roots back to 1906. Today, the Kek range of size reduction mills includes coarse grinding pre-breaker mills, intermediate grinding cone mills and fine grinding universal mills. Technologically, today's machines are a far cry from their heritage. However, they are founded upon a wealth of applications



Kemutec Test Center welcomes the opportunity to demonstrate their equipment in action.

expertise and are the result of several innovative developments over the years.

Kek Universal Mills accept a variety of pin + disc, beater blades and turbine + screen grinding media and are designed for fine grinding applications in the range 50 to 500 microns for products of up to 4 moh hardness at rates of up to 10 tonnes / hr. Hygiene and ease of cleaning are Kek hallmarks which come as standard. In many circumstances, Kek Universal Mills cannot operate in isolation and Kemutec are well placed to offer a wide variety of mill packages to suit virtually all applications. Such packages can include feeding devices, collection hoppers, filtration, explosion relief/ suppression/containment, re-circulation systems, gas inerting, product collection hoppers, transfer systems, mounting structures/platforms and controllers. Kek Mills are used in many applications in the food, pharmaceutical and fine chemicals

industries, where hygiene and / or batch integrity are paramount. However, they are also robust enough to be used extensively to grind products such as coal and minerals. All Kek size reduction equipment is available in optional materials of construction with a variety of surface finishes and they are all designed for ease of cleaning. Kemutec are specialists in controlling temperature and cryogenic grinding facilitating the fine grinding of difficult products.

Kemutec operates a comprehensive Test and Demonstration facility and welcome the opportunity to show customers their equipment in action first hand.

For more information about this or other applications for Kek Universal Mills, or for details about Kemutec full range of products, visit our web site at www.KemutecUSA.com or contact us at 215-788-8013



130 Wharton Road • Bristol, PA 19007
Telephone: 215 788-8013
Fax: 215 788-5113
Email: Sales@KemutecUSA.com
Web: www.KemutecUSA.com

Kemutec supplies Kek brand Sifters and Mills, PPS Air Classifier Mills, Gardner Mixers and Blenders and Mucon Valves and Discharge Aids.