

# Not Just Run Of The Mill

## *Safe Milling with the Kemutec Universal Mill*

Servier (Ireland) Industries Ltd (Servier) are delighted with the new model 4H Kek Universal Mill and also with the back-up service from manufacturer Kemutec. Servier are part of the French headquartered international Groupe De Recherche Servier organization. As part of the company's sympathetic approach to the environment, the design of the Irish factory is more akin-to a French country chateau than a pharmaceutical production plant. In Ireland, Servier specialize in the manufacture of three of the Group's most renowned products - Natrilix and Conversyl, both of which are treatments for hypertension, and Diamicon an oral treatment for diabetes.



The Kek Universal Mill minimizes production space.

The size and layout of the chateau-like factory belies its considerable annual output of approximately 40 million boxes of healthcare products. Production space is at a premium and this was a major consideration for Chemical Plant Manager, Liam Cullen, when he considered how best to boost the production of Gleclazide (the active ingredient of Diamicon) from 5 to 40 or 50 tons a year. The solution chosen was an additional size reduction mill that could be dedicated to this product. Noise and space considerations were key requirements in defining the mills specification because the mill would have to be installed on the first floor of the Chemical Plant building.

Traditional milling systems have a filtered air intake at the material feed point. Air acts as the 'carrier' for the product through the mill. It has to be filtered out of the system at the milled product collection point. Given that a standard Kek 4H Mill is capable of generating an air flow of  $530\text{m}^3/\text{hr}$ , it is easy to

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appreciate the size of the filter unit required to separate milled product from air. This can cause significant problems where space is tight. The explosion risk associated with finely divided powders entrained in an air stream is an additional complication. It is not always acceptable for product resulting from an explosion to be vented to atmosphere. This would certainly be the case with those manufactured by Servier. Another option would have been to build the milling system to withstand a 10 bar over-pressure situation without any venting to atmosphere. However, this still would have meant a large and costly uprated filter and the question of where to site it.

Faced with these challenges, Kemutec proposed an 'airless' 10 bar rated mill, based upon a closed loop re-circulation system. Once closed up, and ready to run, no additional air is introduced into the loop and therefore there's no requirement to remove it after milling. The air carrying the product is continually re-circulated back to the mill inlet. Using this approach at Servier made it possible to eliminate the need for air filtration and explosion venting—offering a quiet running mill at the same time. Mr. Cullen was pleased by the way that Kemutec had tailored their proposal to cope with Servier's requirements. They gave him the confidence that they could do the job. Not only could Kemutec readily demonstrate their ability to meet the process specification through trials in their Technology Centre but, in addition, they had reference sites where the solution being proposed was already in operation. Servier undertook the installation of the mill, and its associated hoist,

themselves; following which, the mill was commissioned by engineers from Kemutec Powder Technologies.

Drums of Gliclazide cake are hoisted above the mill and then inverted to be gravity fed through a hygienic DMN Westinghouse rotary valve into the fabricated 316 stainless steel model 4H Kek Universal Grinding Mill. The mill is fitted with a turbine and screen grinding medium. Milled product drops straight into a conical collection hopper attached directly to the mill outlet. This hopper is accommodated by way of an aperture in the floor under the mill. This gives adequate headroom on the ground floor below for the milled Gliclazide to be transferred, by way of a second DMN Westinghouse rotary valve, into pharmaceutical quality stainless steel IBC's. From here, the active ingredient is mixed with carriers etc. and then delivered to the tableting area for compression into its end product form ready for packaging.



The Kek 4H Stainless Steel  
Universal Grinding Mill.

Due to the relatively short batch runs at Servier, it was possible to provide a closed loop system which operates without any temperature rise problems. Kemutec point out that, where longer runs are required, a chiller can be added to the system to maintain an ambient milling temperature.

In common with other Kek Mills, the mill at Servier has been designed for easy cleaning between batches, aided considerably by the mirror polishing to the product contact surfaces.



130 Wharton Road • Bristol, PA 19007

Telephone: 215 788-8013

Fax: 215 788-5113

Email: [Sales@KemutecUSA.com](mailto:Sales@KemutecUSA.com)

Web: [www.KemutecUSA.com](http://www.KemutecUSA.com)

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