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Sprühen mit Gefühl

Neue Düsentechnologie sorgt für eine besseres Effizienz beim Tablettencoating

Herkömmliche Sprüharme sorgen beim Überzug von Tabletten immer wieder für Ärgernis. Häufig sind sie schlecht zu reinigen und lassen sich nicht gut einsehen. Die Folge ist ein gestörter Prozessablauf und unnötig lange Rüstzeiten. Ein neues Sprüharmkonzept verspricht Besserung.

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+++ Translation for our english speaking clients +++

Spraying with sense

New nozzle technology ensures increased efficiency during tablet coating

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Time and again conventional spray arms cause trouble when coating tablets. They are often difficult to clean and are not easy to inspect. The result is a disruption to the process flow and unnecessarily long set-up times. A new spray arm concept promises to improve this situation.

Many operators and end users in the pharmaceutical industry know about conventional spay arms e.g. in tablet coaters. They are mostly inadequate, difficult to clean, hard to inspect, have bent welded and screwed constructions and are susceptible to faults. Often they also have a lots of dirty corners and dead spaces, meaning there are a lot of surfaces for deposits to build up on. All these disadvantages increase set-up times and prevent there being a continual and reproducible process flow. In recent years Düsen-Schlick has developed and refined a new spray arm concept to solve these problems, which is known as the PCA – professional coating arm.

The new PCA concept works according to the manifold principle, i.e. a common supply of liquid for all nozzles (two to a maximum of nine nozzles). The system was optimised in terms of the hygienic design in collaboration with customers. The arm assembly time is halved and, as hose couplings are not used, there are fewer dirty corners. The use of titanium elements also means that the weight has been drastically reduced. The front area of the nozzle is no longer susceptible to faults due to the patented ABC-technology® (ABC = anti-bearding cap)and the precise, well-centred cleaning needles. Attention was also paid to ease of handling. As a result, a modular construction prevents distance and alignment errors and the individual nozzles can be easily and quickly removed, e.g. for cleaning. The arm is equipped with control air, atomising air, separate forming air and a liquid supply and return system (optionally lockable). The system can be adapted for any type of coater. At present, the PCA concept has already been successfully used 40 times throughout the world. Detailed trials at Düsen-Schlick, Hennig Pharmaceuticals, Flörsheim and also at Degussa/Röhm Pharma Polymers, Darmstadt have shown that the PCA concept is able to guarantee a maximum deviation of ± 4% in the supply of the nozzles, for both high and low viscosity tablet coatings (500 mPas). As a result, the nozzle supply in the PCA is comparable with the individual supply (= each nozzle has its own liquid hose) in terms of the deviation range.

Tried and tested

Hennig Pharmaceuticals in Flörsheim has become the first end user in Germany to completely convert to using the PCA concept for tablet coating. The new system has proved its worth. Formerly, experience showed that only 75 g/min should be used per nozzle because the "horn" nozzles were susceptible to failure. Using the ABC nozzles it was possible to increase the quantity per nozzle to a flow rate of 150 g/min whilst still retaining the same quality of coated tablets. The introduction of the new technologies (ABC + PCA) with adjusted supply air quantities meant that the overall spray quantity could be increased by approx. 30 – 40 per cent, in spite of the reduction in the number of nozzles. The air pressures for atomising air and forming air only had to be slightly increased.

With these new findings, Hennig carried out a revalidation of their 60 different formulations in spring 2005. The orientation was carried out according to product groups with characteristics such as viscosity, aqueousness, organic nature, methacrylate content or proportion of pigment. Coatings that were similar to each other were therefore combined for the examination. It was established that even problematic, waxy tablet core surfaces could be well coated. In total, the cleaning time was reduced by 50 per cent. The processes are executed more securely, quickly and clearly.

The PCA system permits a continual coating process and reduces set-up and cleaning times.
Photo: Duesen-Schlick / O`HaraTechnologies