

■ Process: Film coating of tablets



- ① Herding® filter unit
- ② Silo for precoat material
- ③ Pre-Coater for building up an additional filter layer
- ④ Dust disposal drum

■ The Task

When producing tablets a coating is applied after the process of agglomerating and drying. The purpose of the coating is to release the active pharmaceutical ingredients of the tablets selectively. Coatings on the basis of polymers are sprayed onto the tablets in a fluidized bed.

During the typical batch-time of 15 to 20 hours a very fine dust develops during the spraying phase which is exhausted into a filter unit from the fluidized bed together with a defined air flow. The separated dust is adhesive and not air permeable. Without specifically aligned methods the consequence will be an irreversible clogging of the fine pored filter medium and, therefore, a filtration is no longer possible.

Thus the life time of the filter media is substantially reduced. For example, a cartridge filter may need to be changed twice per month.

As the economical equivalent of one single batch is significant, a filter technology has to be found which by all means guarantees no break in production or even rejecting a charge.


■ The Solution

Herding® Filter System HSL 1500-12/18 GB_Ex

Air flow: 6,000 m³/h
Filter area: 91.7 m²

Besides the filter unit the filter system integrates all components for material handling and a control unit. The filtration of the adhesive dust is done by using a Herding® filter unit combined with a special precoating-process. The precoat material generates a protective layer on the filter elements and prevents clogging of the filter element surface.

Advantages:

- ⇒ Reliable dust separation by using Herding® sinterplate filter elements
- ⇒ Long service life of the filter elements by surface filtration
- ⇒ Clean gas room free of dust explosive atmosphere as the filter elements work as a dust  zone-barrier.
- ⇒ Clean gas dust concentration << 1 mg/m³, therefore, safe separation of the active pharmaceutical ingredients

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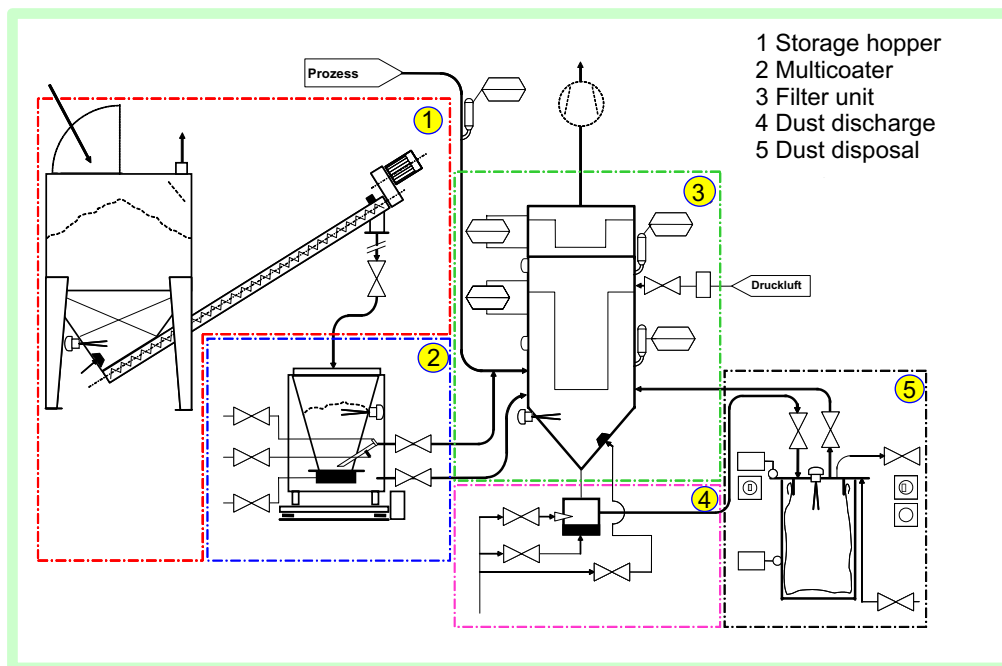
■ The Solution

- ⇒ ATEX-conform design: explosion pressure resistant filter housing with explosion suppression
- ⇒ Herding® Multicoater for injecting precoat material
- ⇒ Optional loading with precoat material from storage hopper
- ⇒ Optional pneumatic dust extraction with dust-free disposal
- ⇒ Minimum downtime between two charges by mostly automatic control of all components
- ⇒ Controlling of the complete filter system by means of superordinated SPS
- ⇒ Process safety in accordance with the high economical value of the charges

■ Specification

The filter system is divided into five components as shown in the flow chart:

The precoat material in the storage hopper (1) is conveyed out of the hopper by means of a screw conveyor and is delivered into the Multicoater (2). From there the material gets pneumatically sprayed into the filter unit (3). The extraction of the adhesive dust out of the fluidized bed into the filter unit takes place simultaneously. The precoat material, which occurs in the hopper of the filter unit by cleaning the filter elements, is conveyed out of the filter unit by means of the injector (4) and is ejected into the loading station (5).



The storage hopper can be loaded at any time. A charge sensor gives a report, if the loading in the storage hopper goes below the minimum storage volume to guarantee the supply of the Multicoater with the precoat material. The charging level in the Multicoater is monitored by CNC in order to be refilled automatically.

The injection of the precoat material into the filter unit is designed for the specific requirements of the filtration process to guarantee an optimum protection of the filter elements, a continuous operation of the fluidized bed and to grant a consumption of the precoat material as little as possible.

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