APPLICATION

THE **TASK**

Production of tablets for dishwashers creates dust with grain sizes of < 1,5 mm when mixing the basic products and pressing the tablet.

This dust is captured at various locations such as e.g. the discharge conveyor, the extraction of presses and other production equipment. Depending on the manufacturer per filter unit flow rates of max. 20,000 m^3/h with a dust content < 5 g/m^3 are extracted. This dust can be hygroscopic and contain enzyme. In addition, it is usually explosive with P_{max} = 6.5 bar at a Ksт value of 70 - 100 bar m/s.

The ATEX classification defines Zone 20 for the filter system's raw gas compartment and Zone 22 for Big-Bag dust removal.

The filter system shall ensure residual dust content of < 1mg/m^3. Furthermore the MAK (maximum concentration at work place) during Big-Bag replacement and maximum noise levels must be considered in this industry. Availabilities of 99 % are required with only one annual maintenance, as well as service lives of 5 years for the filter elements. For the installation only limited space is available for the filter unit.
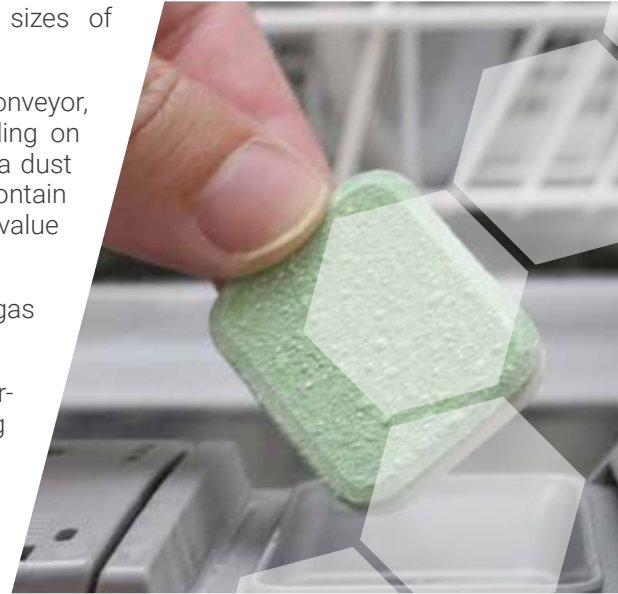
THE **SOLUTION**

The Herding® FLEX 1500-64/9 KGP filter system features a frequency controlled fan that allows adjustment to different operating conditions or changing extraction requirements. The high quality Herding® Sinter-plate filter contributes significantly to achieve material recovery rates over 99 %.

The explosion risk is taken into account by implementing preventive and constructive safety measures. The system is decoupled by check valves in the event of an explosion.

Dust disposal by non-return flap valves and double Big-Bag connections protect human health and the environment against enzymes.

Installation in the restricted space allows the compact design of the filter unit itself and the fans installed separately to the outside.

An appropriate sound insulation reduces the noises below 78 dB(A). Despite the substructure required by the Big-Bags the height of the filter system is limited to 5.5 m. The service area for filter change in front of the unit is 1.25 m.

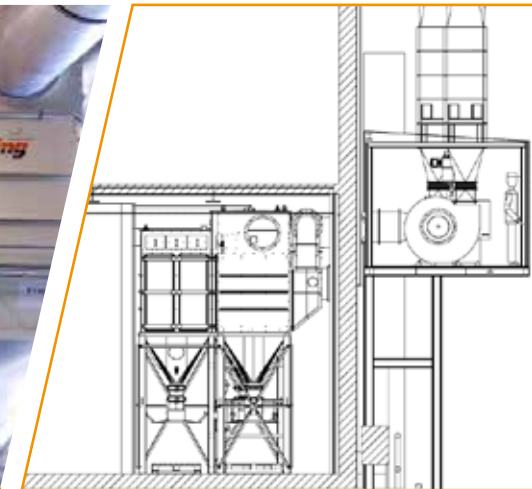*Filter system Herding® FLEX 1500-64/9 KGP*

PRODUCTION // **TABLETS** FOR **DISHWASHERS**

Application NACE-Code: 20.41.0

Area planning in confined spaces

System with two flap valves

Process equipment with external fan

THE **SOLUTION**

The residual dust concentration in the clean gas was measured by an independent institute in accordance with TRGS 402. The measured average value of < 0.1 mg/m³ significantly is well below the required < 1 mg/m³!

The ATEX requirements were taken into account by the following measures:

The filter system is designed free from ignition sources and equipped with explosion pressure relief with two flameless relief valves. The filter housing is designed for a reduced explosion pressure of 0.7 bar. The powder coating has a breakdown voltage of < 4kV. The rigid Herding® Sinter-plate filter serves as an ExZoneBarrier, thus allows classifying the clean gas compartment as safe area.

Permitted noise levels for the filter are respected with 78 dB(A)+3. The specified compartment height is met primarily by the very compact raw gas compartment, possible by the high specific surface of the Herding® Sinter-plate filters. The fan is positioned aside. The hopper height takes into account the pouring angle of the dust and its hygroscopic properties where caking is avoided by hopper heating. The dimensions of the clean gas compartment are result of the allowable pressure losses for the air volume to be extracted. The Big-Bag dimensions were specified by the customer specifications.

THE ADVANTAGES WITH Herding® SINTER-PLATE FILTER

» High rate of separtion and thus efficient material recovery

» Constant operating conditions by simple surface filtration and frequency control

» Herding® Sinter-plate filter as DustⒺⓍZoneBarrier

» Compact and customized system design

» Long service life ensures minimum maintenance

» Herding® Filtertechnik is an engineering partner and an „all in one" problem solver

» ATEX expertise

» Low contamination dust disposal

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