

■ Process: Manufacturing of Tabularoxid



■ Strong as a diamond

Tabularoxid is a high-sintered aluminum oxide (Al_2O_3). In the hardness comparison of the minerals it ranks in the group 9 of the Mohs' hardness scale. To the comparison a diamond is appropriate for the hardness in the group 10! Tabularoxid is used for the production of sanitary and high speed ceramic(s) and for the lining of melting tanks and blast furnaces due to its hardness and its abrasion resistance. The production of Tabularoxid takes place via process-steered installation systems. In the individually production steps abrasive dusts are generated, which make extremely high demands against the wear and tear characteristics of the exhaust equipments and the filter units.

■ The task

The requirements of the operating company were:

- ⇒ Protection against wear and tear of the suction- and filter system
- ⇒ Exhaust of air flow $15.000\text{ m}^3/\text{h}$
- ⇒ Dust content of clean gas $< 1\text{ mg}/\text{m}^3$ monitoring
- ⇒ Self-controlled dust content of clean gas
- ⇒ Recirculating air operation
- ⇒ Operation of the filter units "24/7"
- ⇒ Refeeding of the separated product
- ⇒ Cross-linking of the control with the process instrumentation
- ⇒ Low-maintenance execution of the filtering unit

In order to ensure a high availability of the unit, the requirements were extremely high to the wear protection for the filter unit, tubing lines and product discharge systems!

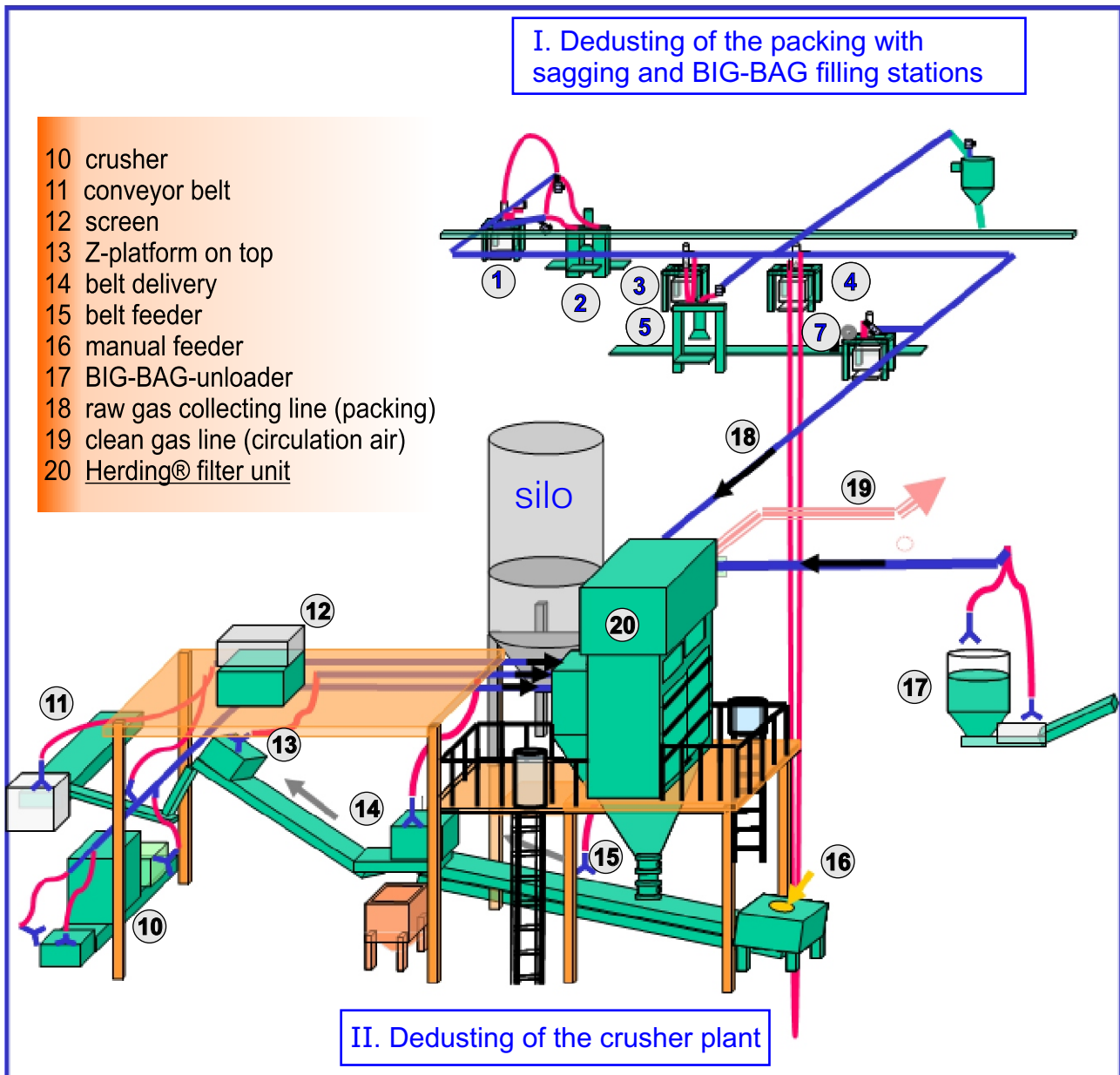
■ The solution

In the concept for the filtration system of extremely abrasive dusts the strengths of the Herding® rigid body sinter plate filters were used. Further engineering measures were directed toward the wear protection at the peripheral components, like for example:

- ⇒ Employment of special lining
- ⇒ Flow optimization
- ⇒ Constructional special solutions

They led to the development of an optimal dedusting system for particularly abrasive dusts. Special solutions in the piping system, within the intake area and with the product discharge work against an early unit breakdown by wear and provide for a high availability of the unit. An automatic clean gas monitoring creates additional working reliability.

Tabularoxid ... Strong as diamond



The result

Since beginning of 2005 the Herding® filter unit works reliably in continuous operation and secures for the operating company a high availability of the high-productive manufacturing equipment. The filtered Tabularoxid dust is led back over a conveyor belt to the production process. The product recuperation of the large dust quantity leads to a considerable cost saving. The emission values could be improved noticeably. The clean exhaust air from the Herding sinter plate filter unit is 100% led back into the workshop.

The amount of residual dust without secondary filter is 0.1 to 0.2 mg/m³. It lies thereby far below the demanded clean gas value of Tabularoxid for the operation with circulating air. The extensive wear protection at the filter unit, product discharge system and piping worked satisfactorily. Complex repairs as well as spare and wearing part changes are saved. After 15.000 operation hours there was still no critical wear visible.

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