

■ Prevention - Avoiding explosion hazards

“Give us 5 minutes of your time ...
... and we will give them safely back!”



■ THE PROBLEM: Safe handling of flammable, explosive dust

Organic and/or metallic dust

- ⇒ in the pharmaceutical, chemical and metalworking industry
 - ⇒ from agglomeration, drying and coating operations
 - ⇒ from grinding, cutting, welding, polishing, blasting, etc.
 - ⇒ present during everyday bulk goods handling
- can be flammable or potentially explosive.

■ THE SOLUTION: “Avoid high-risk ignition sources”

Besides ignition sources in the equipment and in the dust (autoignition and thermite reaction), there are also possible external sources of ignition.

Avoiding ignition sources in the equipment

Design considerations:

- ⇒ Equipotential bonding on all conductive parts
- ⇒ Automatic earthing of the Herding® sinter plate filter and/or the dust collecting bin
- ⇒ Non-chargeable or antistatic version of the Herding® sinter plate filter
- ⇒ Coated steel parts with a breakdown voltage < 4 kV



Organization issues:

- ⇒ Ground the filter unit to the customer's earth point (customer responsibility)



■ Prevention - Avoiding high-risk ignition sources

Avoiding inherent ignition sources in the dust

Design considerations:

- ⇒ Use continuous extraction (e.g. a bucket wheel) to avoid dust deposits

Organizational issues:

- ⇒ Regularly empty the dust collecting bin (minimize storage time and quantity) to prevent autoignition
- ⇒ Rigorous dust separation when handling mixtures of iron oxide and aluminium, zirconium or titanium to avoid thermite reaction



Avoiding external ignition sources

Design considerations:

- ⇒ Use a spark pre-separator which acts as a “filtering separator” and is configured as a cassette with bulk ceramic

Organizational issues:

- ⇒ Regularly clean the spark pre-separator



■ ASSESSMENT: Avoiding high-risk ignition sources

Dust with a minimum ignition energy > 3 mJ can be separated using Herding® filter units without the need for additional protection.

Users have an obligation to continually conduct risk assessments and review the process parameters to ensure compliance with occupational safety, hazardous substance and work equipment safety regulations. Users must take appropriate action if they identify changes in intended use or other changes that have taken place since the design phase.

If the characteristics of the dust change (e.g. minimum ignition energy < 3 mJ) or if the process equipment changes (e.g. introduction of an external ignition source), design modifications must be introduced to provide fire and/or explosion protection for the Herding® filter units.

**“Talk to us ...
... and we will keep you out of harm's way”**

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