



Hanningfield Kwik-Sift™: Enhancing Sifting Output, Quality and Integrity

Background

Sifting is an integral part of the pharmaceutical production process and it assures the quality of ingredients and finished products. Pharmaceutical powders might inherently include some extraneous particles that can be carried over during the manufacturing and purification steps. Sifting is primarily used for security screening of these constituents and it assists in removing oversized particles, lumps or contamination from powders.

Challenge

A global pharmaceutical company (involved in manufacturing and marketing of finished dosage forms for the global market) was facing challenges with respect to operator exposure to active pharmaceutical ingredients (API's) in product processing and longer sifting time through the vibrosifter. The dust generated during sifting operations led to material losses and uniformity issues in the product. In addition, difficulty in screening and mesh blinding, due to static generation, was observed for few powders leading to reduced sifting efficiency.

The Gansons Solution

Gansons proposed performing trials using the Hanningfield Kwik-Sift™ KS - 20 to mitigate the above issues, as shown in Fig 1. Gansons Hanningfield Kwik-Sift™ includes a rotating drum with various mesh sizes for high capacity powder screening. It imparts a centrifugal action and allows powders to pass through screen apertures, thus retaining particles which are larger in diameter than the screen holes. Additional features of this sifter include a single or dual spoiler arm for delumping of agglomerated products, minimum noise and heat generation and high product throughput owing to material conveying by a vacuum transfer system.



Figure 1: Top View of Gansons Hanningfield Kwik-Sift™



Results

The sifting trial was performed on multiple excipients including lactose, microcrystalline cellulose (MCC), Aerosil (colloidal silicon dioxide) and anti-malarial API's using a 018R mesh with a spoiler arm. An output of 200 kilograms/hour was obtained for all the above products vis-a-vis the vibrosifter where product output was observed at 40 kilograms/hour, leading to a significant reduction in security screening time.

The use of a centrifugal sifter along with a powder transfer system (PTS) ensured direct powder transfer in the rotating drums leading to higher throughput and contained transfer along with minimum dusting and minimum operator exposure to the product ingredients. The use of a spoiler arm assisted in deagglomeration of powders and boosted the sifting operation. Minimum heat generation during the sifting operation ensured the stability and integrity of the pharmaceutical components.



Highlights

- 75% reduction in sifting time
- 400% increase in sifting output
- Increased productivity (total increase in production: 26.45 tons/year)

These highlights are specific to this client using these products and this equipment combination. Results may vary due to various conditions.

Conclusion

The use of Gansons Hanningfield Kwik-Sift™ led to a reduction in sifting time and enhanced sifting output for this pharmaceutical product. The contained powder transfer produced negligible product loss and posed minimum risk to the machine operator. Moreover, sifting process automation prevented manual intervention and reduced process related errors. Hence, the Gansons Hanningfield Kwik-Sift™ is an excellent option for day-to-day security screening in the pharmaceutical industry.

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