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Case Study

Quality and efficiency at the heart of South Africa manufacturing facility



GlaxoSmithKline South Africa

Quality and Efficiency at the heart of new manufacturing facility.



GSK Sth Africa in Cape Town manufactures Albendazole Tablets, which have been remarkably successful in the treatment of LF (Lymphatic Filariasis or Elephantiasis), one of the most disfiguring and disabling tropical diseases.



GSK recently commenced production in a new extension to the existing facilities.

The Company has a strong commitment to driving improvement, increasing the robustness of the manufacturing process, reducing waste and maintaining the highest quality standards. In designing the new plant they paid particular attention to specific process steps where efficiencies and quality could be improved.

The solid dosage manufacturing process is batch based and uses Intermediate Bulk Containers (IBCs) to move batches between process steps.



IBC Batch Blender



IBC Wash Station

The process is quite simple and involves the following steps:-

- Raw-material dispensing to an IBC;
- Blending in the IBC;
- Roller compaction of the blended batch;
- Further raw-material dispensing to the IBC;
- Further blending in the IBC;
- Compression of the compacted batch into tablets;

From past experience, GSK identified the roller compaction step as a critical "risk" area. In order to ensure content uniformity and avoid flake degradation in the compacted batch it is vital that the roller compactor in-feed receives material in a consistent, controlled manner.

At this part of the process the materials are very light, cohesive and prone to bridging, thus making control of flow almost impossible for conventional (butterfly valve) IBCs. In-feed starvation and segregation are common problems.

GSK decided to use the Matcon Cone Valve IBC system as they had previously used this system for a similar process in France, in order to guarantee reliable, consistent feed of the blended batch to the roller compactor and ensure the highest quality and efficiency in their production. The Cone Valve system ensures the blended material is completely discharged from the IBC, in a controlled manner, without the need for any operator assistance.

The feed rate from the Matcon system is automatically regulated by a level sensor at the infeed of the roller compactor, thus ensuring the system is never choked with product and



IBC loaded to Discharge Station

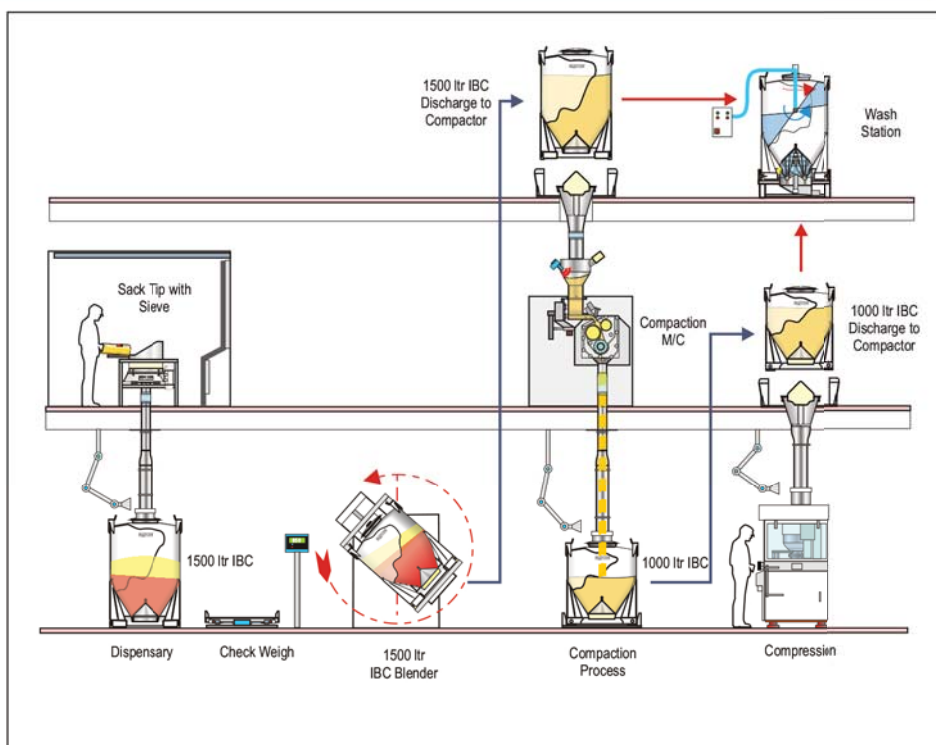
FEATURED STORY

compaction can take place at its optimal rate.

After compaction the batch is moved in a Matcon IBC to the tablet press. Once again Matcon's Cone Valve discharge system provides reliable, gentle controlled feed of the compacted batch into the tablet press, ensuring no degradation of the compacted flakes.

Mr Tony Krombeen, Project Coordinator is extremely pleased with the Matcon system which has met all his expectations.

The new plant extension has been fully validated by GSK and has been in full production since August 2005.



Albendazole Tablets production

Roller Compacting with Maximum Reliability.

With the current trend in the Pharmaceutical Solid Dosage Industry to reduce manufacturing costs by improving efficiency – producing granules by ROLLER COMPACTING has come to the fore.

Roller compacting provides simpler processing, is significantly smaller and less complex than conventional high shear / fluid bed drying with resulting savings in space and cost.

However, the solids required for successful Roller Compacting are typically very poor flowing and prone to compaction if vibrated. This creates bridging of the solid in the feed hopper and Intermediate Bulk Container (IBC) above the Roller Compactor. This "starves" the Roller Compactor and creates inconsistent granules and requires operator intervention (a hammer!

To work efficiently Roller Compacting requires a "controlled" feed of solids at a consistent, uncompacted bulk density as it is a very "head sensitive" process. It can not be flood fed.

The Matcon principle of a lifting, pulsing Cone Valve in an IBC, guarantees that the solid discharges without compaction, providing a consistent bulk density right through the batch.

The ability of the Matcon Cone Valve to valve and shut off material flow means that we can provide small "refills" of solid to the Roller Compactor inlet hopper ensuring a very consistent "head" of solid to the hopper.

In the last few years the Matcon Cone Valve has gained industry recognition as the solids handling solution to successfully feeding Roller Compactors.

Initially we replaced a number of Butterfly Valve IBC Systems which used vibration and flood feeding principles, which failed. Currently we have been "specified" for Roller Compacting projects in Switzerland, Italy, Spain, Germany, South Africa and Canada with different multinational Pharmaceutical companies.

Also with current trends of Continuous Processing using Process Analytical Technology, Roller Compacting will become a critical cost saving process for continuous production.

Matcon can guarantee the critical continuous, controlled feeding which allows the process to work!

