

Improving Production Efficiency for (PIBSA) Manufacturer

Expand and Improve

A chemical manufacturer in Alabama sought to expand their production capabilities and increase process efficiency by transitioning from an outdated, manual production line to an automated process. Their existing method involved the laborious use of a manual pressure filter to remove sedimentous resins from a Polyisobutenyl Succinic Anhydride (PIBSA) product. PIBSA's are widely used in the petrochemical and lubrication industries and are a major precursor to the manufacturing of various detergents, dispersants, and emulsifiers. The engineering firm handling the expansion project reached out to Steri Technologies, inquiring about the feasibility of employing our Funda Filter technology for this application. Steri's track record of success in comparable applications bolstered the engineering firm's confidence, serving as the foundation for the project.

The Application

Steri's Engineering team developed a novel solution to tackle the challenges brought forth by this application. A few of the requirements to consistently remove the sedimentous micro tars from the PIBSA product included:

1. Designed to operate at over 450°F was crucial to reduce product viscosity and enhance throughput.
2. The amorphous structure of the micro tars would extrude through the filter media, rendering filtration ineffective.
3. The application required a slurry discharge that is re-suspended with clean mineral oil.

Through Steri's experience we were able to recommend appropriate materials of construction to handle the high temperature process for the formulation of PIBSA's. This eliminated the need to cool the solution prior to filtration, improving the energy consumption balance and rate of filtration.

Amorphous micro tars are formed as a byproduct of the PIBSA reaction and have proven to be a difficult substance to remove when using various filtration technologies. However, based on Steri's experience, it was determined that using Diatomaceous Earth (DE) as a precoat and body feed would ultimately be the key to removing the micro tars from the PIBSA suspension. The infusion of DE into the PIBSA solution would allow the proper formation of the filter cake on the leaves of the Funda, achieving the desired level of filtration.

The incorporation of the slurry discharge eliminated the need for solids handling and allowed for continued automation in the process line.

Why Steri?

Steri Technologies' extensive history in developing custom solutions for unique manufacturing challenges has equipped us with valuable experience across various industries. During start up, the very first filtration cycle yielded a clear filtrate, meeting the client's expectations and continued to in subsequent batches. The client expressed a very high degree of satisfaction, stating, "Steri has met and actually exceeded our expectations." Steri's automated solution justified the financial investment by boosting productivity, safety, and efficiency.

Post-Installation Inspection

After three years in operation, the 25m² Funda Filter underwent a preventative maintenance inspection. The filter exhibited minimal wear and deterioration, requiring only minor replacements of a few soft components. No work was necessary on the filter leaves and media. Given the excellent condition of all parts, all maintenance was completed in less than a single work shift and returned to its operational state within a matter of hours.

Contact us today to discuss how our products can help you meet your production goals.



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