

Conquering Challenges in Powder Mixing:

How AZO Rescued a Dry Mix Manufacturer



● Introduction (Problem)

In the realm of dry powder-mix manufacturing, precision and consistency are the cornerstones of success. One company, which we'll refer to as the "Dry Mix Innovators," specializes in creating dry mixes for the consumer market. Their recent endeavor to switch from granular sugar to maltodextrin in their mixes came with unexpected challenges. AZO came to their rescue. In this article, we'll unravel how AZO addressed the unique issues faced by the "Dry Mix Innovators."

● The Company and Its Industry

Our story revolves around a dynamic dry powder mix manufacturer, the "Dry Mix Innovators." They are renowned for producing dry mixes that are loved by consumers across various industries. In a bid to enhance their product offerings, they decided to transition from granular sugar to maltodextrin in their mixes. However, this seemingly straightforward switch led to unforeseen complications.

● The Challenge: The Maltodextrin Dilemma

The challenge at hand was the unintended consequences of switching to maltodextrin. Both granular sugar and maltodextrin were supplied in bulk bags and unloaded through a bulk bag unloading system. This system had been designed to handle granular sugar, but maltodextrin has different flow characteristics. Maltodextrin was highly aerated during unloading, which caused it to flood the surge hopper and clog the filter between the bulk bag and the pneumatic pickup pan. To compound matters, the filter fan had to be turned off due to the clogging issue. This created a dust problem and posed an explosion hazard due to the explosive nature of maltodextrin.

● The Process Evaluation

Upon recognizing the dusting issue, AZO engaged in discussions with the "Dry Mix Innovators." They reviewed the operational steps taken, including the fan shutdown, and thoroughly examined the flow characteristics of maltodextrin to understand the root causes of the problem.

Material Assessment Studies

To pinpoint a solution, a crucial step was to test the maltodextrin. The tests revealed that maltodextrin exhibited highly floodable behavior when dispensed from a bulk bag unloader.

Engineering Considerations and Innovative Solutions

With a deep understanding of the maltodextrin's characteristics and the challenges posed, AZO undertook a comprehensive evaluation. Flow rates, surge hopper volumes, filter placements, and air-to-cloth ratios were meticulously reviewed. It was determined that the maltodextrin needed to be slowed down and that the filter should be positioned higher above the surge hopper. To achieve this, an impeller valve was recommended to regulate the flow into the surge hopper. Furthermore, a pressure differential indicator was proposed for the surge hopper filter to monitor its performance.

The Transformation

The result of AZO's intervention was profound. The system was successfully implemented, and for the past few years, it has operated smoothly without any quality issues. Downtime has been minimal, and the dusting and explosion hazards have been effectively mitigated. The success of this endeavor has given the "Dry Mix Innovators" the confidence to consider AZO for future projects.

In conclusion, this collaboration between AZO and the dry mix manufacturing industry showcases the power of innovation and problem-solving. By addressing the unique challenges associated with maltodextrin flow characteristics, they have set new standards for quality and safety. While the name of the "Dry Mix Innovators" remains undisclosed, their success story with AZO stands as a testament to the transformative impact that can be achieved when industry leaders collaborate to overcome complex challenges.