

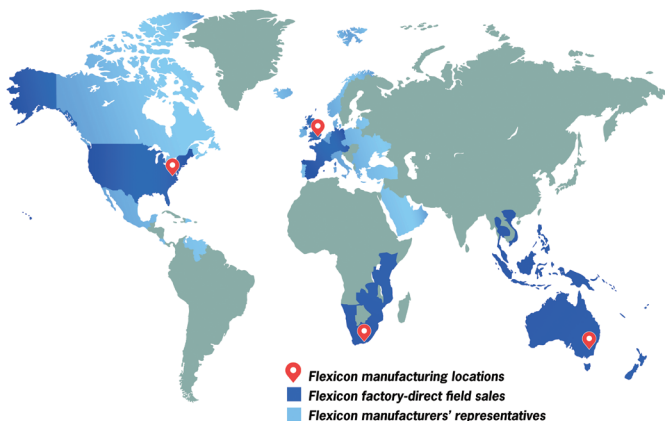
FLEXICON CASE STUDY



Two bulk bag dischargers, a flexible screw conveyor, a bulk bag filler and programmable controls allow re-bagging of PVC modifiers into bulk bags of three sizes and 50 lb (23 kg) sacks, efficiently and dust-free.

PVC Modifiers Re-Packaged Using Bulk Bag Dischargers, Filler, Conveyor

DD-0515



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PASADENA, TEXAS — Kaneka North America LLC needed an efficient, dust-free method of re-packaging PVC modifiers to replace manual methods in place since 2003.

The plant packages grades of modifier products into bulk bags (2000 lb [907 kg], 1700 lb [771 kg], 1000 lb [454 kg]) and 50 lb (23 kg) sacks based on projected customer orders for product grades in specific bag sizes. When the actual orders don't match the projections, the plant needs to transfer products from one bulk bag size to another.

Previously, forklifts suspended a bulk bag above the hopper of a portable screw conveyor which transferred the material into the desired size bulk bag. Similarly, material was discharged from a bulk bag into the hopper of a valve bag filling machine for 50 lb (23 kg) sacks.

Both operations presented safety risks from the suspended bulk bags and generated high levels of dust. Product loss also occurred, and operations frequently had to stop for cleaning and removing dust that would pose a safety hazard. "Re-bagging was inefficient, and the fine powders generated dust," said Brian Wilson, Staff Reliability Engineer at Kaneka North America.

In the new system supplied by Flexicon Corp., a flexible screw conveyor transfers powder from the first of two BULK-OUT® bulk bag dischargers to a TWIN-CENTERPOST™ bulk bag filler. The second bulk bag discharger empties into the hopper of the valve bag filler for 50 lb (23 kg) sacks located under the discharger.

Discharging material into various size bulk bags

In Kaneka's "bulk-to-sack" transfer system, a BULK-OUT® model BFC-C-X bulk bag discharger empties contents of the bulk bag into the hopper of the valve bag filling machine for 50 lb (23 kg) sacks.

The BFC Series discharger differs from the BFF Series discharger in that bags are lifted from the plant floor by means of a cantilevered I-beam with hoist and trolley, eliminating the need for a forklift. This hoist assembly was installed to fit limited headroom where the bulk bag discharger is located. As with the "bulk-to-bulk" transfer system, the discharger employs a SPOUT-LOCK® clamp ring and TELE-TUBE® telescoping tube.

Dust-tight system boosts productivity

From start to finish, both operations are completely enclosed, greatly reducing dust emissions. Dust control for both transfer systems has been further enhanced by connecting to a recently installed dust collection system with explosion protection. Vent hoods and mass balance dust



Operator in foreground initiates a bulk bag filling cycle while operator in background loads a bulk bag into the discharger frame using its electric hoist and trolley.



The flexible screw conveyor transfers material from the bulk bag discharger (rear) to the bulk bag filler (foreground). A height-adjustable fill head accommodates bulk bags in any of three sizes used by the company.



At the bulk bag filler, an inflatable collar seals the bag spout to prevent the escape of dust, after which the PLC inflates the bag to remove creases prior to filling.

collection spouts were installed as required to make the system as clean and safe as possible.

“Dust generated from the re-bagging operation has been significantly reduced. The new system improves our productivity by an order of magnitude,” Wilson concludes.

Kaneka North America LLC offers a range of performance modifiers for PVC and engineering resins to meet customers’ physical and chemical property requirements.



'Bulk-to-sack' system: The bulk bag is loaded into the frame using the discharger's cantilevered I-beam, electric hoist and trolley, and then gravity discharged through the telescoping tube into a filling machine for 50 lb (23 kg) sacks.



The operator opens the outer closure of the bag to access the bag spout which he connects to a dust-tight Spout-Lock® clamp ring. Once the drawstring is released, material flows through the bag spout as a Tele-Tube® telescoping tube maintains constant downward tension on the clamp ring, promoting complete discharge as the bag empties and elongates.



A 50 lb (23 kg) sack is filled, ready for shipment.

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