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Bulk resin transfer made fast and safe

A bulk solids handling system by **Flexicon**, has vastly improved the transfer of bulk resin in the production of an aqueous soap solution for speciality chemicals company ArrMaz Custom Chemicals. The system is helping the company achieve accurate batch weights without investing in an automated batch weigh system

ArrMaz Custom Chemicals produces speciality chemicals for the mining, water treatment, fertiliser, asphalt and construction industries. Since it began in 1967 as a phosphate producer, it has introduced numerous products and expanded its markets into 70 countries.

In addition to extensive quality control and customer service programs, the company has implemented a 'Total Safety Culture' to protect its employees and the subtropical ecosystem of

central Florida. ArrMaz goes beyond environmental regulations in operating the majority of its open air manufacturing facility under a roof to provide safe working conditions while minimising storm water run-off.

One ArrMaz product is a resin soap called Arr-Muls, used as an emulsifier in slow-setting asphalt and as an air-entrainment agent in masonry cements. The process uses heat and agitation to dissolve a solid resin into sodium hydroxide or potassium hydroxide to produce an aqueous soap solution. To transfer the solid resin from sacks in kgs, ArrMaz originally installed a Flexicon, manual bag dump system comprising a hopper with a dust collector, and a 6.7m flexible screw conveyor to discharge the resin into a 22,700L tank. Each 9,090kg batch of resin, represented 400 sacks that required lifting, slitting and dumping by the operator.

ArrMaz then decided to retro-fit a low-cost bulk bag unloader to the bag station and so minimise the manual handling. This helped prevent potential injury and other health hazards associated with the handling and disposal of bags and minimised waste.

The Flexicon flexible screw con-



A forklift operator positions the bag lifting frame on top of the bulk bag unloader. The 6.7m long flexible screw conveyor transports resin from the bag dump hopper into a 22,713L tank

Left: The cradle at top of the bulk bag unloader supports the removable bulk bag lifting frame. An iris valve between the bag spout and manual dumping hood controls the rate at which the bulk resin enters the hopper

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veyor was retained since it is not only well suited for use with a bulk bag discharging station but also has handled the resin effectively despite the material's tendency to interlock and degrade. The existing dust collection exhaust system was also retained but moved from above to beside the hopper to allow positioning of bulk bag spouts directly above the hopper.

The new hardware consists of a four-post unloading frame, at the top of which is a cradle with wide receiving cups supporting a removable bulk bag lifting frame that is lifted and positioned using a forklift truck, allowing operators to connect full bags and disconnect empty bags at floor level.

A conventional iris valve above the existing manual dumping hood prevents material flow from the bulk bag until the bag tie has been untied. It then allows controlled discharge of the bulk resin into the hopper which feeds the flexible screw conveyor.

The frame is also equipped with spring-loaded 'Pop-Top' bag extension devices that raise the bag-lifting frame and elongate the bag as it loses weight, promoting flow of material from the corners of the bag through the spout.

Simultaneously, pneumatically actuated Flow Flexer plates raise and lower opposite bottom sides of the bag into a 'V' shape at timed intervals, loosening agglomerated material and directing it through the bag spout.

With the new system in place, ArrMaz Custom Chemicals began sourcing 99 per cent of its resin in 1,000kg bulk bags, which are discharged in their entirety and supplemented with manually dumped 22.7 kg sacks to achieve target batch weights of 9,090 kg.

The bulk bag unloading capability has cut resin loading time from about 60 minutes down to 15 and by retaining the original bag dump station system, accurate batch weights are achieved without investing in an automated weigh batching system.



Checkweigher suits small, light packages

Loma Systems, has launched its CW3 400 UL, described as an accurate, ultra-light checkweigher. The CW3 400 UL is said to be suitable for small, lightweight packages or valuable products and materials where high accuracy and maximum throughput are required.

The CW3 400 UL can weigh products up to 400g with accuracy as precise as 0.04g and a maximum throughput of 450 items a minute, making it suitable for small food products like salt and sugar sachets. It is suitable for integration into any application where the weighing process must conform to stringent pharmaceutical requirements and its precision is said to enable the checkweigher to detect a diverse variety of anomalies ranging from assorted confectionery to missing spices on ready meals.

The system also incorporates a delicate air blast reject system which has a baffleplate to ensure the air reject is separate so it does not interfere with the weigh platform and the out-feed reject and ensures consistent accurate performance. The unit has a 'bin full' sensor to ensure under or over weigh product are not damaged when rejected.

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