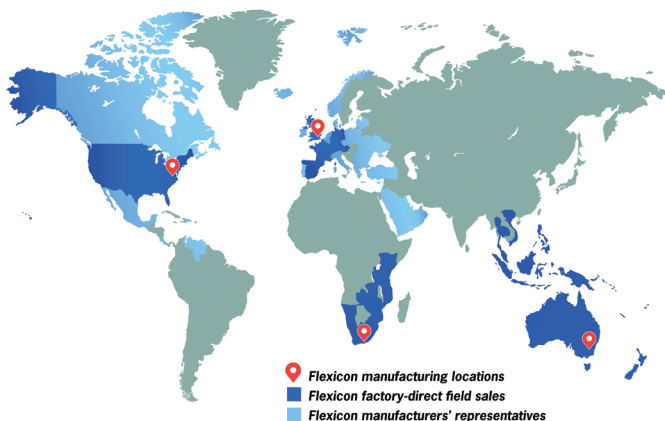




Retrofit with blender and flexible screw conveyor adds in-house blending to packaging of cosmetic powder

X-0251



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Retrofit with blender and flexible screw conveyor adds in-house blending to packaging of cosmetic powder

ROUSES POINT, NY — By blending the ingredients of its Spring Fresh body powder in house, Delagar Division, Belcam, saved on purchasing the blends from a contract manufacturer, and on shipping them to Delagar's plant for packaging. In addition, the company gained the flexibility to modify formulations to satisfy individual customer requirements.

The Spring Fresh product, one of many that Delagar markets to retail and professional customers, is a blend of talc powder, glitter and fragrant oil that creates a shimmering effect when applied to the neck and shoulders.

Previously, raw talc was shipped directly from the mine to a contract manufacturer where it was blended with glitter and fragrance, loaded into bulk bags and shipped. Once at Delagar, the pre-blended material was discharged by a bulk bag unloader into a 15 ft (4.5 m) long flexible screw conveyor that fed a packaging line.

By adding only a mixer and a second flexible screw conveyor to the system, Delagar gained the ability to blend Spring Fresh ingredients in house.

How the retrofit system operates

Raw talc now arrives at the plant in 2,000 lb (907 kg) bulk bags, the straps of which are attached to a bag lifting frame that is forklifted into cradle cups atop the 15 ft (4.6 m) high telescoping posts of the original Flexicon Model BFF Bulk Bag Unloader.

The operator pulls the bag spout through an iris flow control valve positioned at the top of a hopper intake chute, and then closes the valve. This allows the spout drawstring to be untied and the valve opened slowly, avoiding uncontrolled bursts of material into the hopper and dust into the plant environment. Spring-loaded POP-TOP™ bag extension devices on each of the frame posts stretch the bag upward into a cone shape as it loses weight to promote discharge of material through the spout. Additionally, FLOW-FLEXER® bag activators raise and lower opposite bottom edges of the bag into a steep "V" shape to loosen compacted talc and promote total discharge through the spout.

A new 10 ft (3 m) long, 4.5 in. (11 cm) diameter flexible screw conveyor, also from Flexicon, moves talc from the unloader to the new 4 cu ft (1.12 cu m) horizontal paddle blender.

As the conveyor discharges talc into the blender, a liquid metering pump for the liquid fragrance oil and a bulk solids feeder for the powdered glitter — meter preset small amounts of the two materials continuously into the blender while it is running.



Operator attaches bulk bag to lifting frame and forklift-loads the frame and bag onto the bulk bag discharger.



Once the bag spout is pulled through the iris flow control valve, the operator closes the valve, unties the spout drawstring, and slowly opens the valve

During the 8 to 12-hour continuous run cycle, the blender automatically discharges the blended batch into a 1 cu ft (0.028 cu m) surge hopper that charges the company's original 15 ft (4.6 m) long flexible screw conveyor (previously used to unload bulk bags) which discharges into the surge hopper of the packaging machine.

Both hoppers have high/low level sensors to signal a controller that activates the flexible screw conveyors to maintain fill levels. The level sensor on the hopper below the unloader also alerts the operator to replace empty bags. The same volumetric system also controls the motors that meter glitter and fragrance oil into the blender.

Talc requires gentle handling

Raw talc powder is soft and dusty "much like flour," says Delagar's production manager, and must be handled by the machinery quickly and lightly so as not to become too aerated. She adds that the addition of glitter and fragrance oil has little effect on the powder's flow characteristics.

The flexible screw conveyors are equipped with spirals which are designed to efficiently handle the aeratable powder, while minimizing compression of the talc which could pack and cake under excessive pressure and frictional heat.

"Between production runs, an operator vacuums what little powder remains in the blender," explains the production manager. The bottom end cap of the conveyors can be removed and the screws rotated in reverse to evacuate the tubes. "The flexible screw conveyors do not leave enough residue to concern us," she says.

Founded in 1954 in Rouses Point, NY, Delagar produces both retail and professional body care products including Mystic Impressions fragrances for women and Classic Match for men, Bath Therapy Dee-lish, and Spa Reflections.



A 10 ft (3 m) long flexible screw conveyor moves talc from hopper beneath the bulk bag to the paddle blender, while a liquid metering pump and bulk solids feeder meter glitter and fragrance oil into the blender.



At left, a 10 ft (3 m) long flexible screw conveyor moves talc from hopper beneath the bulk bag to the paddle blender. At right, a 15 ft (4.5 m) long flexible screw conveyor transports the blended batch to the packaging machine. On top, a vacuum line pulls dust into a dust collector.

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Talc powder is the chief ingredient of Spring Fresh body care product, to which glitter and fragrance oil are added.