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How Korpack Wins on Speed and Smarts

From materials sales to digital dashboards for brands, this co-packer does it all.

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Co-man's Ribbon Blender Boosts Output for Chemicals

For its custom powder blending business, Diversified Chemical Products chose a Munson ribbon blender that now processes three-quarters of a million pounds annually across 45 different formulations.

BY JOSEPH DERR, Editor

From its start in 1974 as a small, family-owned research and manufacturing business, Diversified Chemical Products, Inc. (DCP) has in the last two decades grown rapidly as a custom manufacturer of FDA-regulated formulations. Like its name implies, the Diversified Chemical Products of today handles a wide range of laboratory, medical and dental products, in addition to chemical cleaning powders. DCP prides itself on its versatile approach.

"We're diverse in what we manufacture and package," says Jim Longo, DCP's president. "We either develop technology and private-label it for large dental and medical distributors, or we manufacture product according to customer specifications under the customer's label."

The Wilmington, Del., company's specialty lies in powder formulations for the dental industry, says Longo.

"We make powder blends for specialty functions within the dental industry. These include cement removers, powders



The ribbon blender is fed through a bag dump station and discharges to a floor hopper before blending.

that remove impression material from molds, products for fabrication of dental prostheses and for cleaning of dental instruments, in addition to other custom powders for dental laboratories."

Other products range from cleaners used by jewelers to high-level enzymatic cleaners used on printed circuit boards.

At the heart of DCP's remarkable growth sits a Munson 40 cu ft (1.13 m³) HD-36-SS Ribbon Blender that has been the workhorse behind the company's powder blends since 2003. This single piece of equipment now processes some 45 formulations totaling about 750,000 lb (340,194 kg) annually—a dramatic increase from the 30,000 to 40,000 lb (13,607–18,144 kg) it blended when new.

The FDA-compliant, all stainless steel machine is configured with a bag dump station at its intake, and a receiving hopper

and screw conveyor at its discharge to transfer materials to a surge hopper feeding a filling and packaging line.

A mainstay for powder blending

Longo says Munson ribbon blender has been a key piece of equipment in his plant. "Our blender is adaptable and flexible, and has been our most consistent piece of equipment. Numerous machines here have been replaced or upgraded, but the ribbon blender has been a mainstay for 50 percent of our business, which is powder blending."

The machine's reliability has also helped DCP focus on business expansion in the diverse range of formats it offers, says Longo.

"The machine has never required an overhaul and has enabled us to take on projects that we previously could not handle. We fill everything from 55 gal (208 l) drums all the way down to small individual unit-dose packets. If you consider the range of products processed, and that we are moving three quarters of a million pounds of powder per year, our ribbon blender is constantly running."

Longo says batch sizes range from 500 to 2,500 lb (227 to 1,134 kg), and the blender yields an accurate mix that passes quality control specs. A typical batch when engineering a product for a customer falls between 1,800 and 2,100 lb (816 and 953 kg).

The blender's simple design proves invaluable for workers during product transitions, as Longo explains.

"We change seals regularly, depending on which product we're going into, to eliminate cross-contamination. The unit has air purge for the seals, which keeps out most of the powder. But after a day when we have



Most blends at DCP include fragrances, colors or other liquid additions.



Jim Longo, owner and founder, has led Diversified Chemical Products to grow sixfold over two decades.

finished five different blends, everything is broken down, cleaned, stripped, scrubbed, sometimes seals changed, and then it's set up for the next blend, which takes place a day or two later."

Dust containment is vital for DCP's operations and the system has it covered.

"To manage the dust created by the materials we process, we fit the bag dump station with pleated, one-micron filters for some applications and submicron filters for others, which we can easily swap in and out," Longo says.

Uniform blends, rapid sanitization

To ensure consistent mixing of ingredients with different densities and particle sizes, DCP relies on the ribbon blender, which outperforms plow- or paddle-style machines for this purpose. "Some ingredients might only weigh 10 or 15 pounds in a 2,000-pound batch," says Longo. "Some might be a fraction of a percent."

The blender's semi-helical, counter-flow agitation design ensures uniform dispersion of ingredients throughout the mix. "You have the two outer bands moving in a direction counter to the inner flow, and the two edges mixing together," says Longo. "We have a number of powders containing enzymes that have to be accurately dispersed and verified through QC analysis, and we achieve accurate dispersion consistently."

The blender also handles challenging, "fluffy" low bulk density powders requiring liquid integration through internal spray lines. "Out of the 45 powders we blend, at least 40 include some form of liquid—fragrances, dyes, or functional ingredients," says Longo.

Cleaning is quick and easy, without needing to remove the ribbon blade agitator element. "My team has cleaning down to a science."

Looking ahead, DCP is eyeing facility expansion to accommodate growing demand and considering a smaller Crossley Economy™ Ribbon Blender from Munson to handle sophisticated minor blends. **CM+P**

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