

Generations in the Mixing

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Over the last few years, smaller family owned, U.S.-based processing companies have experienced a jolt of growth brought on by the pandemic and global supply chain disruptions. Spending on consumer goods surged against a backdrop of trade restrictions, rising freight rates, and persistent logistics challenges. Local production lines and manufacturing plants have to effectively keep pace with the widening demand. Companies with the ability to be agile and adjust to these rising needs find themselves in the market for bigger, better equipment and more manufacturing space. Such is the case for Chem-Pak, a mid-sized contract packager of aerosol and liquid products as well as a producer of specialty coatings, consumer, and industrial chemical products.

Founded by George Pete Duane Jr. in 1966, Chem-Pak, Inc. is a family owned and operated chemical manufacturing firm, housed in a state-of-the-art, 40,000-square-foot facility in Berkeley County, West Virginia. Specializing in liquid and aerosol packaging and lean manufacturing, Chem-Pak works with customers to bring products from concept to commercialization and deliver high-quality products to the marketplace. Its brand of flaw-repair coatings are used in plastic furniture, consumer electronic parts, and automotive components. They also produce lubricants, penetrants, cleaners, degreasers, rust control chemicals, firearm finishes, and polishes for musical instruments. Chem-Pak is also a contract liquid and aerosol packager, with a full-service R&D laboratory offering formulation expertise, prototype generation, testing capabilities, and regulatory support.

Father and son duo Randy and Mike Duane have worked hard to expand and strengthen the company despite the challenges over the last several years. They largely attribute the growing success to their highly skilled team, supportive local community, and the family style atmosphere they have created for their employees and clients. "Being a family business is very important to our employee group. We have a very collaborative, team-oriented, family oriented business culture that's very important to me. It was important to my father. It's important to Mike," Randy Duane states.

Since moving from its original Virginia plant to the new site in 1999, Chem-Pak has grown seven-fold. And the momentum keeps building. Chem-Pak is adding a new aerosol line with a 12-million-can per-shift capacity, and in the next two to three years, will be expanding its employee base from 60 to 90 full-time employees and the existing facility by 20,000 square feet.



With rapid growth comes the need for new equipment to meet production and customer demands. Senior Engineer and Maintenance Manager Andrew Kees turned to ROSS, an employee-owned and operated 180-year-old company with corporate offices located in Hauppauge, New York, and five manufacturing plants in the United States. Its long history and deep experience have earned ROSS a reputation for innovative engineering, heavy-duty construction, and superior workmanship — a true blend of traditional American production values and cutting-edge technology.

To meet the fast-growing number of orders, the Chem-Pak team decided to upgrade its fleet of mixers to allow them to process larger batches and incorporate powder ingredients more efficiently. "About 20 years ago, I was looking at a trade magazine and saw an ad for ROSS. Knowing the mixers that I just installed at my facility were smaller models (from a different manufacturer) and would eventually need to be replaced, I tore that page out and stuck it in a file. Years later, I pulled it back out, spoke to the team at ROSS and bought our first mixer from them — I was impressed with the quality and so I ordered a second," says Kees. ROSS being made in America was a big consideration behind that decision. "We knew the sourcing of maintenance components would be readily available and technical support just a phone call away. To fit our explosion-proof requirement, we felt confident, with ROSS being manufactured in the states, that a true NFPA 70 standard was adhered to."



The ROSS floor-mounted Model HSD-50 high-speed disperser with explosion-proof 50HP motor, heavy-duty V-belt drive and bearings, an air/oil hydraulic lift, and a high-quality, laser cut, 16-inch diameter blade.

Kees worked with the expert sales team and engineers at ROSS to determine the right mixer for their application. They needed a heavy-duty mixer that would take the extended wear and tear required by their production line, as well as the flexibility to mix various raw powder and liquid materials. The ideal mixer would grow with them as their business continued to expand. The ROSS floor-mounted Model HSD-50 high-speed disperser was a perfect fit. In 2018, Chem-Pak acquired an HSD-50 with explosion-proof 50HP motor, heavy-duty V-belt drive and bearings, an air/oil hydraulic lift, and a high-quality laser-cut, 16-inch diameter blade. These machines are built to last, and their reliability, power, and longevity were just what Chem-Pak needed to keep up with the growing demand. The ROSS high-speed dispersers checked all their boxes. "The mixer shaft has a standard blade mounting and fastening configuration to allow sourcing of various blade designs. The robust floor mounting plate works nicely with our unique (radiant heat in concrete floor) fastening restrictions. ROSS's lift cylinder allowed readily available house compressed air the only utility needed for the operation. The mixers have a bright clean finish that aesthetically fits our 5S protocol," adds Kees.

In 2022, they ordered an exact duplicate. "We were faced with new customer demands that had to be batched in higher volumes to keep up with production rates. Our new ROSS mixers allow us to produce larger batches in a shorter time frame, much easier and faster," Kees says.

As an explosion-proof toll contract packager, Chem-Pak needed the flexibility to provide existing and future customers with a new solution for more viscous products to accommodate thicker compounds. The company recently installed a mixing high-speed aerosol production line to accommodate thicker compounds. "We didn't want to remove the option of smaller batches for our specialized clients but we saw an immediate improvement in 'product to line' speed with our ability to make larger batches in the ROSS mixers. This time savings has allowed the manufacturing team to be more productive and keep up with orders more easily," Kees adds.



To keep up with growing demand, Chem-Pak recently installed a new high-speed aerosol production line to accommodate thicker compounds.

Running at tip speeds up to around 5,000 ft/min, the ROSS high-speed disperser is a durable workhorse designed to induce vigorous turbulent flow within a wide range of viscosities, from water-like up to around 50,000 cP. It creates a vortex into which dry ingredients can be poured for fast wetting. The blade speed may be changed as the batch thickens or increases in volume to maintain the vortex and rate of material turnover — perfect for the various slurries made at Chem-Pak. "We have specific requirements that normally demand long, high-speed dispersion of powders to create our slurries. The ROSS mixers are capable of the demand we put on them and allow our manufacturing line to reduce mixing time while also increasing volume, thus resulting in a greater output of material," Kees says.

The design of the ROSS high-shear disperser allows for containers within a range of sizes (diameter and height), as well as their placement on or off center. The shaft acts as a baffle in off-center mixing. This reduces the sawtooth blade during mixing — a feature that accommodates different batch sizes and prevents any potential stratification.

The ROSS mixers at Chem-Pak are versatile and efficient pieces of equipment that will serve for decades to come. In the way that well-made things preserve tradition, these machines pass on the American manufacturing values of one family business to another.

*All images courtesy of ROSS and Chem-Pak.