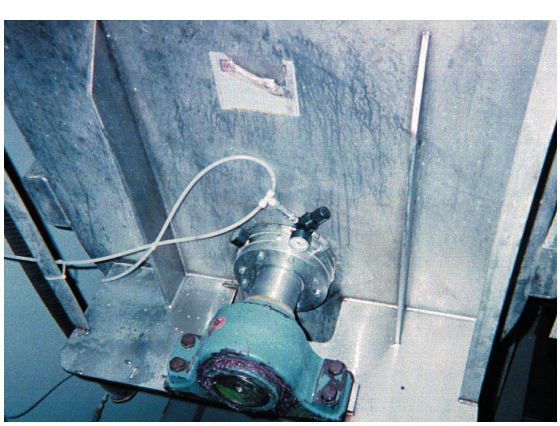
Seals prevent product loss for food manufacturer

Reed Food Technology in Pearl, Miss., is a processor of bulk food ingredients for the food service industry. Their products include batters, breadings, dry spice and seasoning mixes, instant marinades, sauces and gravies. These are sold to hotels, cruise ships and other large food service establishments. Their original products were wet dressings and sauces, and they would outsource the dry seasonings they needed. The boss realized he could save money by bringing the dry blending operations in-house so he bought a couple of new blenders. This idea was the beginning of Larry Martin's nightmare.

Larry Martin is the plant's maintenance manager. He was introduced to one 3,000- and one 5,000-pound horizontal ribbon blender, sporting 3-inch and 3-15/16-inch diameter shafts, respectively. Each shaft end was sealed with two silicone lip seals inside a waste-pack housing. The blenders ran 10-12 batches-per-day, turning at between 13-15 rpm then reversing the direction of rotation to unload. The blenders are hosed out between batches to keep the pudding from tasting like garlic and so on.



The machines worked effectively, but the trouble was the seals. The most expensive problem they caused was the product leakage. The two blenders were leaking approximately 300 pounds-per-day of spices (at a value of around $400) onto the floors. This cost the company over $83,000 per year in lost product. The product was also lost in the form of airborne dust particles, which ended up covering every surface in the blend room and clogging the vacuum filters. Employees chose to wear dust masks to increase their own comfort, while feeling aggravated at the amount of time they had to spend cleaning the blend room at the end of each workday. Once per week, two workers spent two hours to clean or replace the vacuum system filters.

Martin remembers trying to "limp along" through each week, hoping the seals would make it through Friday, when production was routinely stopped for maintenance work. The list of chores always included spending four manhours to change the lip seals on the two blenders. The replacement parts cost between $35 and $40 each week. One of the ways the seals would fail is for the surrounding springs to break. The plant's metal detectors were earning their keep as bits of broken spring would occasionally find their way into finished product.

Another detriment caused by poor sealing of the blenders was damage to the shafts. Salt and spices are highly abrasive and when they creep out into the waste pack housing and get between the seal and the turning shaft, the particles eventually wear grooves in the shaft's surface. This causes the seals to be less effective when they don't fit as tightly and the condition spirals out of control. Martin had to have the blender shafts replaced on an annual basis at great cost to the

company. It took two workers one day to replace a shaft, and they sometimes had to hire outside help from a local machine shop to free the shaft from the sprocket. The cost for this was $800.

Martin was getting very tired of this recurring nightmare when his boss read about another type of seal and inquired about retrofitting his blenders with it. MECO sent their regional distributor, Jerry Chevalier of Mid South Mechanical Sealing, to evaluate the situation and take measurements for custom seals. In a matter of weeks, the seals were drawn to spec, manufactured and installed on the first blender. Martin and one co-worker did the installation themselves in one day. He reports that most of the time was spent to get the old seals off and that the new seals went on quickly and simply.

"It doesn't take a Rhodes scholar to do it (the installation)," says Martin. "Once you get the end wall flat and the bolts to line up, it's a gimmee."

The seals they used were of a fully split design, so that they could be installed without replacing the bearings or drive.

The productivity of the company has skyrocketed with the improved efficiencies that accompanied the switch to MECO seals.

Life in the blend room improved immediately. The machine with the MECO seals had zero product leakage. The company was convinced to replace the seals on the second blender with MECO seals later that same year. With both blenders sealed effectively, workers reduced their daily cleaning time by 25 percent and shed their dust masks. Morale among the workers improved immensely because a large source of aggravation for them was removed.

The seals are designed so that the seal cavity can be flushed out and dried without the seals being

removed from the machine. This is done daily at Reed Foods. The seals can also be taken apart, cleaned and replaced as needed without recalibration. At Reed, it takes one worker one hour per month to perform this task, compared to the four man-hours per week it took before to replace the lip seals. There are no more weekly seal parts costs. MECO seals have rotating faces that are wear parts, designed to be replaced when they wear down beyond a certain thickness. Reed has had to rebuild the seals on only one of its blenders so far, after the first year of operation. The other blender is still running on the original seal faces after two years. The shafts are showing no signs of wear or grooving and Martin expects them to last 20 years with the MECO seals.

The productivity of the company has skyrocketed with the improved efficiencies that accompanied the switch to MECO seals. Fridays were previously reserved exclusively for maintenance chores, but now when they need to, they can run production on Fridays as well. The elimination of product waste has allowed the company to compete better in its pricing, so business has grown. The company plans to order two new, large capacity blenders this year and is going to specify that they be delivered with MECO seals factory-installed.

For more information on the MECO Seals, contact Woodex Bearing Company at 800-526-0800 or go to www.mecoseal.com