

Tessy Plastics Uses Dedusting Technology to Turn Regrind into Profit

In 1998, family-owned Tessy Plastics, a custom molder headquartered in Elbridge, N.Y., took advantage of a strong economy and state financial incentives to invest \$7.6 million to expand and improve its production facilities. The growth included doubling the workforce with the addition of 300 new jobs, expanding production space from 90,000 square feet to 170,000 square feet, and installing 20 new, state-of-the-art injection molding machines.

The investment paid off, as Tessy's business expanded and its already solid industry reputation grew stronger. The company, with two additional facilities in Lynchburg, Va., and China, offers an array of technical capabilities, including two-shot, reel-to-reel, and gas assist molding, and silicone overmolding. Tessy uses modern microprocessor-controlled injection molding machines in temperature- and humidity-controlled environments and it has cleanroom manufacturing capabilities to Class 10,000. Tessy's product lines include business machine products, medical devices, automotive components and accessories, cellular phones, and other products.

The company was founded in 1972 when Henry Beck and his partner turned a side business into a primary one. Six years later Beck bought out his partner and never looked back. In 2000, Tessy Plastics was named the 2000 Processor of the Year by a plastics industry news magazine.

After the company's well-publicized expansion, Tessy purchased another, less costly piece of machinery in 1998 that nevertheless played an important role in the company's growth – the Pelletron P10 DeDuster™ from Pelletron Corporation (Lancaster, Pa.).

"We were experiencing some tremendous growth at the time, but we thought we could still improve the quality of our product," said Allan Sheriff, material control supervisor for Tessy Plastics. "The DeDuster™ was brought in a short time later to help maximize our regrind use."

For example: If a plastics product manufacturer used 180,000 pounds of resin per week at \$1.25 per pound, material costs would be \$225,000 per week. If only one percent is lost through scrap, the manufacturer loses \$2,250 each week in unused material. By regrinding the scrap into a useable resin, the manufacturer can virtually eliminate such losses.

But regrind has a downside – dust. Depending on how the scrap is recycled, the dust levels can be significant, lowering material quality, increasing equipment maintenance, negatively impacting worker safety as a result of any air borne particles, and reducing profits. In many instances, the dust content in regrind is higher than at any other time in the production process. With regrind, dust content frequently reaches more than 10 percent. For virgin materials, a dust content of one percent by weight is considered significant. "When the resin in the press has dust it causes short shots and it plays with the entire process," Sheriff said



Regrind, because of its inherent value, is an important issue on all levels of the plastics manufacturing industry. If conditions are right, molders can significantly increase profit margins by increasing the amount of regrind used in the production process. The more regrind available for use; the less virgin material is required, which lowers material costs and increases profit margins.

By purchasing the P10 DeDuster™, a mid-range Pelletron model with a processing capacity of 1,000-pounds-per-hour, Tessy was able to turn scrap plastics into useable regrind by reducing the percentage of dust content. That translated into an increase in profit margins for the molder as well as its clients.

“We saw a return on investment in the DeDuster™ within the first year, if not sooner,” Sheriff explained. “Without the dedusting, we were about 80 percent efficient over 24 hours. But with the Pelletron P10 DeDuster™ giving us the ability to clean the material, we’re easily between 90 and 100 percent. There are certainly a lot less complaints from our press technicians when we run regrind that has been run through the Pelletron.”

For one customer, Sheriff explained, Tessy was able to produce two orders of product using 100-percent regrind, a nearly unthinkable feat prior to installing the dedusting unit. “The Pelletron machine paid for itself right then and there. More importantly, we were able to cut our customer’s cost by more than 50 percent.” Sheriff estimates that Tessy Plastics saves up to 15 percent more regrind than in the past by cycling the

material through the Pelletron DeDuster™. The net effect is cleaner parts produced less expensively, creating better returns for both Tessa and its customers. “The bottom line is that our customers see the results by getting a good product on time,” Sheriff said.

Pelletron’s dedusting technology uses a flux-field generator to disrupt the static charge between the regrind and the dust particles. Once the charge is broken and the regrind and dust particles are separated, they are washed with air to help lift the dust away from the resin. The dust is removed with the help of a vacuum near the top of the machine, while the clean regrind falls through the bottom to a storage bin for eventual reuse.

Sheriff said Tessa uses two P-10 machines, the first one bought in 1998, to separate fines from all types of materials – including polypropylene, polycarbonate, nylon (all types), liquid crystal polymer, ABS, high- and low-density polyethylene, polyester, and more. “Before we got the DeDuster™ we rarely ran regrind,” he said. “Since then, we’ve been able to use more of the different types of regrind than in the past. It makes it much more efficient and profitable.” The usual operating conditions, he said, include dedusting between 70 and 100 pounds of material per hour, depending on the project and the makeup of the material. The P10s, he said, are located off-line near the regrind room and are fed material as it’s needed. “Depending on the day, we process as little as 300 pounds in a 24-hour period, or as much as 4,000 pounds,” Sheriff said. Additionally, the dedusting system needs very little maintenance attention, according to Sheriff, even when processing different blends of materials. He spends less than an hour cleaning the DeDuster™ when changing from one material to another.

The company plans to install an additional dedusting system – the P1 Mini-DeDuster™ – in the coming months. The P1 is Pelletron’s newest and smallest unit with a capacity of up to 1,000 pounds per hour. Tessa plans to install the system at the feed throat of one of the company’s molding machines where the P1 will be used to dedust both virgin and regrind materials. Tessa’s other U.S. plant location is considering a DeDuster™ placement based on Sheriff’s recommendation.

“If there is anything else out there that is better at removing dust from regrind, I haven’t found it,” said Sheriff.