Premier Surplus Inc.
Urban Mining

Premier Surplus successfully prospects for PCBs, gold, copper and other valuable electronic waste with the aid of TOMRA AUTOSORT® FINES optical sorter

The American entrepreneurial spirit is alive in Dawsonville, Ga., with Stephanie and Phillip Kennedy and the 90-plus employees of Premier Surplus, Inc. What is now a 137,000 ft² multi-division operation started nearly two decades ago from the Kennedy's single-stall garage. "I traveled to electronic equipment auctions and phoned Stephanie, who would research the value of items online, so I could put in a good bid," recalls Phillip Kennedy, VP of Premier Surplus, the largest family-owned E-Scrap recycling operation in the State of Georgia.

They refurbished and resold on eBay the electronics purchased in bulk. The only catch – they had to buy pallets of items, some of which could not be resold. "We had to find a way to generate value for the leftovers," he adds.

Recycling these left-over electronics was the genesis of Premier Surplus. Outgrowing the garage, the Kennedys moved operations to a larger shed and then again to a 20,000 ft² facility, adding a shredder to increase E-scrap sorting efficiency. Taking in more material, Premier Surplus again moved into a larger, 50,000 ft² facility.

"At the time, we processed about 20,000 lb. of E-Scrap a day," comments Kennedy. However, workers still sorted by hand printed circuit boards (PCBs), metals, plastics and other materials, which limited growth potential. A complete automated circuit with an optical sorter from TOMRA took things to the next level.

"TOMRA has unmatched technology plus a commitment to recycling."

Phillip Kennedy, VP of Premier Surplus

Automated circuit featuring TOMRA

After moving to the 137,000 ft² building, Premier Surplus installed a 217-ft long automated shredding and sorting circuit, anchored by a TOMRA AUTOSORT® FINES optical sorter to increase sorting accuracy and material purity, while improving efficiency. "Our metals customers only want metals and our plastics customers only plastic. That is what AUTOSORT® (FINES) delivers," says Kennedy. "We now process up to 60,000 lb. of E-Scrap every day."

Kennedy extensively researched the different circuit components to make sure he purchased the right sorting solution for their current and future needs. He also enlisted the E-Scrap recycling expertise of Peter Prinz, owner of Prinz Consulting, to assist.

They added a triple-shaft, SSI shredder to effectively liberate material and Prinz recommended a Javelin eddy current machine to recover aluminum and copper. For the optical sorter, the technology to use was a given.

"I recommend the best components for E-Scrap processing, and over the last 16 years, I've found TOMRA sorting equipment excels in E-Scrap applications," says Prinz.

"TOMRA offers 30-40% better recovery than other sorters, and AUTOSORT®FINES will recover about 75-90% on the first pass."

Peter Prinz, Owner of Prinz Consulting

Premier Surplus worked with TOMRA plant building partner, Van Dyk Recycling Solutions, Norwalk, Conn., on the purchase, installation and ongoing support of the optical sorter. Something else beyond technology drew Kennedy to TOMRA for anchoring the automated sorting circuit.

"TOMRA doesn't just make equipment. They have a work culture focused on recycling," he says. "They are committed to the plastics crisis, sustainable technology and the circular economy."

Ever evolving feed

Make no mistake, it is the flexible AUTOSORT® FINES sorting technology that helps Premier Surplus earn its success. Kennedy says that E-Scrap sorting is extremely challenging because of the constantly changing feed material. "Manufacturers are using green, yellow, blue, red and brown circuit boards, and that is the primary product our customers want." AUTOSORT® FINES combines electromagnetic, near infrared (NIR) and visible spectroscopy (VIS) technologies to not only sort material by color but also by material composite. TOMRA's FLYING BEAM® technology evenly distributes the light over the entire belt for better recognition. The sensor detects the specific wavelength of light in NIR and algorithms classify the material to decide whether to drop or eject material.

Premier Surplus drops the plastic and ejects circuit boards, wire and non-ferrous material on the initial sort.

"We are getting about 95% material recovery on the first pass, which is better than we anticipated."

Phillip Kennedy, VP of Premier Surplus

Mark Neitzey, national sales director for Van Dyk, adds, "AUTOSORT® FINES makes it easy for Premier Surplus to rerun the ejected materials for further processing, which is a huge benefit." Kennedy explains that Premier Surplus has their own "recipes" for running batches of materials such as printers, set-top boxes or automation equipment. AUTOSORT® FINES identifies the material to be removed from the stream to create a good, clean final product. The machine's customer interface stores different sorting programs and allows the operator to quickly switch between programs to match the material stream.

A year and a half into operating the new circuit and there is no second guessing that Premier Surplus made the right equipment selection for the automated circuit. "We definitely made the right choice with TOMRA. I really have to give thanks and praises to everyone that was involved in this project," says Kennedy. "The demand for properly recycling e-waste is there. That's why the Premier Surplus team stands ready to do our part in keeping material out of the landfill and, at the same time, protecting our customers' data and reputation."