

MEETING THE SPEC IN NEWARK

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These glass industry experts from New Jersey pay close attention to the production and marketing of cullet and other recyclables.

Four men in Newark, N.J., think they know how to win at least half the battle in operating a materials recovery facility (MRF). And they are willing to share this secret, summed up in three words:

“Meet The Spec.”

These men — Simon Sinnreich, Murray Fox, Joe Mastroianni, and George Wolfson — have between them roughly six decades of experience in “meeting the spec” in the glass industry. They are clearly focused on one thing: running their recycling operations so as to produce a high-quality, very useful product from the waste material that comes in the front door . . . one that meets the specifications of manufacturers who will pay for the material.

As a result, they say, their MRF stresses product quality instead of high volumes. An example is plastics. The more than 30 municipalities under contract with their company, Distributors Recycling, Inc., have been beating down the door to get the company to accept plastics. But the company has taken a one-step-at-a-time approach to the material.

“We’ve got a pretty good thing going here, for the cities and towns that come here, and we did not want to take a step backward,” says Mastroianni, the company’s vice president of operations. “We may know a lot about glass, but we are still learning about the plastics market. While the market for the metals and the glass that we take and

Distributors has been experimenting with and granulating plastics, most of which are from bulk loads of containers.

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process here is so we think, the market for plastics is not in the same place yet

“We didn’t want to start taking HDPE [high-density poly-

ethelene] and PET [polyethylene terephthalate] plastics have the market collapse on us. If that happened, then we would have to tell our municipal customers to stop bringing us plastics. They would then have to tell their residents to stop putting out plastics. Think of what a mess that would be! If it takes us a few extra months to get it going, but we end up doing it the right way, with a good, stable market we will all be the better off for it.”

Meeting the demand for cullet

Sinnreich, Fox, and Mastroianni have long and deep glass industry experience. Mastroianni, who has run glass manufacturing plants, recounts the history of the use of recycled glass (cullet) in making new glass:

“In the glass business, we always recycled the rejects anyway, as far back as anyone could remember. But in the late Fifties and early Sixties, there was the thought that if we increased the amount of cullet used, we could decrease the amount of fuel used to make glass. Using cullet is more fuel efficient.

By JOE SALIMANDO

"A well-run glass manufacturing plant will not have more than 8% waste, and at times in the Sixties we were running 18% cullet. So there was demand for cullet," explains Mastroianni. "In fact, one of the principals of our company, Murray Fox, was involved in the Sixties as a cullet supplier to glass companies.

"Simon Sinnreich was also in the cullet business, in the Eighties. He had a company, REI Distributors, that brokered glass.

"In the early Eighties, fortuitously, Murray and Simon met and talked. Simon, because of his unique position as a broker, knew that there was a need for more cullet, and a need for processing facilities to turn waste glass into useful material. Murray, because of his background in supplying cullet, knew all about the machines — the glass crushers, the screening systems.

"So they got together. The result was, in 1983, the opening of Distributors Recycling here in Newark."

How the decasing operation works

Distributors Recycling started as a "decasing" facility. Located not far from an Anheuser Busch brewery, the plant is an intermediate stop for beer distributor trucks.

Typically, a distributor's truck will load up with cardboard cases full of empties at the distributor's warehouse, drop them off for recycling at Distributors Recycling, and then proceed, ready for another load of bottles with beer in them, to the brewery.

Distributors opened in 1983, to take advantage of cases of empties that would be generated by New York state's bottle deposit law. The company accepts and recycles three items from beer distributors: glass bottles, aluminum cans, and the cardboard boxes in which these things are supplied. Prices paid for the glass run from \$8 per ton to \$16 per ton.

Distributors pays its customers for the glass, but charges them a small amount to take the aluminum. The company has a Balemaster baler to compact the cardboard. Mastroianni says the Distributors Recycling plant — which is housed in the same building as the MRF — handles 75 to 100 tpd of glass.

There are two major differences between the bottles from the decasing operation and those coming in to the MRF:

1. There is little or no trouble sorting the decasing bottles by color, since they come in large quantities of the same color and are almost all whole.

2. There is little or no contamination in the decasing operation's bottles. Mastroianni says he stations one or two pickers at key locations—downstream of where the bottles are broken—to pick out stray debris, such as cigarette and cigar butts, out of the decased bottle stream.

While contamination could run rampant in a MRF operation (see details below), Distributors personnel are dedicated to stamping it out—so they can "meet the spec" established



Distributors Recycling accepts cardboard cases of empty bottles and cans and recycles all three materials.

by buyers of the material. "We've all got experience in setting and meeting specifications," says

Mastroianni. "Simon's whole experience has been as a purchaser. Murray Fox was supplying cullet for a living more than 20 years ago. And as a glass plant manager, I am used to meeting tolerances of one-one-thousandth of an inch. We all know how important it is, and it's never far from our mind."

MRF opened in February, 1988

With foresight similar to that which stimulated him to open Distributors, the REI team began, in 1986, to work with municipalities in New Jersey. Some had already begun curbside recycling programs, and they needed a place to take the material.

That initial spadework led to the commitment to build the MRF. Opened in February, 1988, the one-shift operation handles 180 tpd of commingled bottles and cans. With 10 employees on the sorting line, the REI MRF has a total of 15 people at work.



On the sorting line, 10 workers separate commingled bottles and cans.

But for our pickers to get it's got to be a whole bottle from the cities and towns come in, it's in pieces, the picker doesn't touch it, and it ends up in the mixed-color cullet. We get a lot less for mixed-color cullet than for pure clear that meets the spec. In other words, compaction kills it.

Operating the MRF: no handbook

The MRF profits from its location next to the decasing operation. A system of three

cross-conveyors feeds the three glass colors (green, brown and clear) from the MRF to the three main conveyors that feed a \$450,000 glass-cleaning system.

Basically, then, the 150 tpd of glass from the MRF and to 300 tpd of decasing operation glass are processed together.

With the need for such a system obviated, REI held down the cost of building the MRF to about \$900,000. Many of the machines are proprietary, designed by Murray Fox; one nonproprietary item used is an eddy current magnetic separator (for aluminum cans). There are three other magnets located elsewhere in the plant; their function is primarily to pick caps and other bits of metal out of the glass streams.

Despite the proprietary label, the basic idea of this MRF isn't radically different from that of others: Get a group of trainable people to pick the different colors of glass off of a moving conveyor belt.

"Our job is quality control," says Mastroianni. "To tell you the truth, the job of sorting is not a high-paying, glamorous position. Roughly 40% of the people we have on the line are from the Occupational Center [for the handicapped]. These people may have limitations in other jobs, but they do a great job for us in picking out the dishes and other ceramics from the bottles and cans.

"Right now we don't have any Occupational Center people in quality control positions, but we think one or two of them may be trainable. You have to remember, this is work that is appropriate for them. It's not heavy work, and it's not dangerous."

"We pay the municipalities \$10 per ton if we pick the material up, \$12 per ton if they deliver to us," says Mastroianni. "Most of the cities and towns are on five-year contracts. We guarantee that the price will not drop during that period." Among those doing business with REI is the host city, Newark.

"We accept all the material that they bring — there is no limit. But it must meet our standards. We have a particular problem with the towns that dump the recyclables on the ground before loading them, with a bucket loader, into the truck that comes here. We get a lot of dirt and rocks in those loads, which is not very good for our equipment and people."

Other contaminants coming in regularly to the MRF include dishes and other ceramics. Items making once-in-a-lifetime appearances in the building have included automobile fenders and radiators, baby diapers, and a jar filled with mercury.

While contaminants are a problem, REI has trained municipalities to carefully examine their loads by rejecting particularly objectionable loads. "My favorite is the time that one of our municipality's workers was not paying particular attention," says Mastroianni. "At least, that was the only explanation. The load came in with the top half of the dump truck filled with bottles and cans, and the bottom half filled with bags of manure."

Another area important in meeting the spec is to remind municipalities not to compact commingled materials. "Municipalities are a very good source of flint [clear] glass," says Mastroianni. "Flint brings a very good price.

With a full supply from the municipalities and a full crew, the Distributors facility can process 180 tons of commingled recyclables in a day. The output is roughly 83% glass, 15% metals, and 2% wastes, Mastroianni says. The company's yard sometimes has large quantities of mixed-color glass and green glass in storage; the markets for these items vary from time to time, according to Sinnreich.

"Markets for emerald [green] glass go up and down," says Sinnreich. "A particular company may have an order for green bottles, and after it fills that order it will go back to making other colors. At that time, when it switches over, there is a much-reduced market for the emerald." To find markets for unwanted emerald and mixed-color cullet, REI is eyeing various alternative markets.

Tin food and coffee cans make up the bulk, in terms of weight, of the metals sold by the facility. "Over time, we actually seem to be getting more and more of the food and coffee cans here," says Mastroianni.

Beyond "meeting the spec," one key to success in the MRF operation, Mastroianni says, is thinking on your feet. "There's no point of reference in this business, no history to go back to. That's what makes it so interesting to me. You are really on your own. When we started this plant, there were, perhaps, two other MRFs in operation in the East. It's a situation where you learn by doing. We went slow, took it one step at a time, and that's why we're successful."

Plastics, and other future plans

As far as the Newark MRF goes, Distributors plans to add plastics. In fact, the company has been experimenting with the baling and granulating of the material — although the experiments have been conducted on bulk loads of empty plastic containers, not materials pulled from the residential waste stream.

"We think we'll have to add a second line to the MRF, and run the material through this line first," says Mastroianni. "We'll take all of the plastics out of the stream, then shunt over the rest — the glass and metal — over to the original MRF line.

"But plastics will not be easy. It will take time to develop. And we must be certain of the markets."

REI's activities and plans for the world outside Newark are most exciting:

- The company works with a nonprofit group in Flint, Mich., the Flint Environmental Action Team (FEAT). REI helped design a recyclables processing facility there, and "manages" it from afar. The FEAT facility handles color-separated glass and metals, as well as office paper; but no REI personnel are on-site full time. How do Sinnreich, Fox,

Although the bulk of what the facility handles is glass, 15% of its output is metals



and Mastroianni manage the plant from afar? Via telephone and express mail — indicating that the company is basically a consultant to FEAT.

- REI and Dom Glass have put together a joint venture, Multi-Container Recycling, Inc., to recycle material from the waste stream in Toronto.

- In a unique arrangement with a Connecticut waste paper dealer, REI accepts metals and glass from the dealer's recycling facility. The dealer accepts recyclables from selected local loads and pulls the paper out. *Also in Connecticut*, the company has purchased a facility that it plans to transform into a Newark-type operation.

- REI's oyster is bigger than North America: The company is working on exporting cullet, especially, and other recyclables. That's the assignment given to George Wolfson, the vice president for international marketing at sales. "We're trying to develop relationships with buyers foreign countries, working against the day that the market in the United States changes," says Sinnreich. "There's a need for only so much cullet in this country." The company reportedly has exported significant tonnages of materials.

Finally, however, the company gets back to MRFs. To export more, and to gain a handle on a bigger flow of cull — the reason Sinnreich started all of this in the first place — REI is likely to build MRFs in other places. One likely location: Florida.

"I think if we build another facility we might not do things the same way," says Mastroianni. "Remember, we had the decasing facility in place here when we began planning the MRF. At another site, starting from scratch, we will take a closer look at what can be accomplished automatically and how we might reduce the need for labor. We might change some other things, most of them oriented toward getting the glass clean by employing new technology — all oriented toward making sure we meet the spec.