

Monitoring the future: CRT glass recyclers speculate on the future of glass-to-glass recycling markets - Commodity Focus - Cathode ray tubes

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Many Americans are streamlining, shedding their bulky CRT-containing monitors and televisions in favor of the sleeker LCD and flat screen models available now. In addition to economizing on space, these new devices offer the ultramodern look that many expect from 21st century devices--or what shows like The Jetsons taught us to expect, at any rate.

Ironically, the growing popularity of LCD (liquid crystal display) and flat screen monitors is expected to have unfavorable effects on the closed-loop recycling process in the long term, just as state laws banning CRT (cathode-ray tube) devices from landfills have started to stabilize a system to recycle CRT glass.

BENEFITING FROM BANS. "CRT disposal bans have really made a difference with key decision makers, such as corporate facility managers, town public works officials, banks and insurance companies, whose involvement can either hobble or jump-start a collection program, Robin Ingenthron, founder of American Retroworks Inc., Middlebury, Vt., says. "But, interestingly, public participation is strong in states like Vermont, which have voluntary collection programs statewide."

"The volume of monitors coming in from the coastal areas is picking up," Herb Schall of Dlubak Recycling, Upper Sandusky, Ohio, says. Dlubak processes CRT glass at its Upper Sandusky and Yuma, Ariz., locations.

California, Florida, Massachusetts, Maine and Minnesota have banned CRT-containing devices from their landfills. But Lauren Roman of United Recycling Industries Inc., which is based in West Chicago, Ill., says these bans do not help all CRT recyclers across the board. "I think most states try to contract with recyclers in their states. In Massachusetts, I know they used Massachusetts-based recyclers," Roman says. "We have not yet seen an increase from state programs."

Roman continues, "I don't know that the states are flat out banning export. Maybe they are. But if they are not, we wouldn't see [an increase in CRT-containing

devices], because it costs more to have them processed domestically than it does to export them."

Joe Nardone of Envirocycle Inc., Hallstead, Pa., says he thinks the landfill bans are good for the industry. "I don't know realistically if there is anyone out there who knows how much of an environmental impact there really would be with that CRT glass going to the landfill. But to me that is a moot point when we have the ability to send it back to the industry that produced it and have it made back into new tubes. That is obviously the right way to proceed with the whole thing."

However, with the growing popularity of LCD and flat screen monitors and the decreasing number of CRT manufacturers remaining in the U.S., this ideal situation will probably be shorted-lived.

ADVANCING TECHNOLOGY. Ingerthron says the conversion to LCD and plasma monitors has positively impacted reuse markets for CRT monitors in the short term. "People are switching to flat screen for reasons having nothing to do with the performance of their old monitors," he says. According to Ingerthron's figures, 35 percent of the CRT monitors collected are in perfect working order.

Looking slightly further out, he says the key to maintaining markets for CRT glass will be in increasing recycled content in the TV tubes that are still made in North America. Ingerthron says he sees no reason a company such as Thomson Multi Media, with tube-making plants in Ohio and Pennsylvania, cannot increase its recycled content to 50 percent, as securing sufficient quantities of recycled glass would not be a problem.

"In Vermont, we are offering free recycling of Panasonic TVs just to recognize that company's role in increasing the percentage of post-consumer glass in the TVs they are making," Ingerthron adds. "It's now 13 percent, which allows them to buy all the CRT glass collected in the Northeast."

However, in the long-term, the ability to recycle CRT glass back into CRTs will be significantly reduced. "They are not going to be making the old fashioned CRTs in anywhere near the volume that they used to," Roman says. "That is not to say that they will stop making them altogether, because they are so much cheaper. But the

volume is going to go down, and if the volume goes down, the production goes down, and they are not going to need all the glass that is available," she says.

Charles McFadden of EcoGlass Recycling Inc., Lakewood, N.J., agrees that CRTs will not disappear completely from the market. "Certain manufactures, I believe even newer ones, will pop in to try to take advantage of the reduced price of cullet and manufacture CRTs for other devices," he says.

"As the technology switches from CRTs to LCDs and plasma units, the opportunity to recycle the glass from the old CRTs, in North America anyway, will be substantially diminished. There is no doubt about that," Nardone says. "CRT glass cannot be used in LCD or plasma units. It's a different glass composition. And there's not a hock of a lot of glass when you talk about the LCDs that we see in the marketplace right now," he adds.

Currently, the U.S. is home to just three CRT manufacturers--Thomson, Technoglas Inc. and American Video Glass Co., a joint venture of Sony Corp. and Corning Asahi Video Products.

In addition to the growing popularity of LCD and plasma screen monitors, Schall says the traditional consumers of CRT cullet are "going away" thanks to competition from China. The sale of low-cost glass from China "leaves very little incentive for glass manufacturers to invest money to rebuild a (production) tank," he comments.

It may thus become necessary to establish alternative markets to absorb the glass recovered from CRT monitors.

EVALUATING THE ALTERNATIVES. Almost all CRT recyclers agree that CRT manufacturing can accommodate more glass than any other potential market. "I could sell as much funnel glass as I could possibly get my hands on, whether it was in North America or anywhere else. They would come to me if I had that kind of quantity of funnel glass," Nardone says of the lead-containing funnel portion of the CRT stream. The largest portion of the CRT glass stream is derived from the panel, however, which comprises two-thirds of a CRT's weight and does not contain lead.

Some of this panel glass currently represents a problem when returned to the CRT manufacturing process because no technology exists to separate the two distinct

light transmittance chemistries used by manufacturers, according to Nardone.

"Consequently, the glass melting operations can only take back so much of that glass because what we are sending them is glass that has mixed transmittance panels in it; it's not a pure 54 or 55 transmittance." However, Nardone says panel glass is suitable for many alternative uses as it is lead free.

Dlubak has been experimenting with alternative uses for the panel glass stream, beginning with a ceramic bead. "The product that we came up with is converting the glass into a ceramic bead and using it as a filler material in either inert systems where you mix it with things like Portland cement or in with plastic to make simulated wood," Schall says. "[Such] products sell for a fraction of the baseline material," he adds.

Schall is optimistic about the resiliency of glass. "Glass over the years reinvents itself to take new shapes, new forms because it is such a cheap material and has so many good characteristics," he says.

In volume terms, Roman sees secondary and primary lead smelting as a viable alternative to CRT manufacturing.

Schall says St. Louis-based Doe Run Co., the last primary lead smelter in the U.S., charges 20 cents per pound to take CRT glass. "We sell glass to the industry at 60 to 70 percent of material cost."

Ingenthron says the key to expanding the use of leaded CRT glass by primary and secondary lead smelters is in convincing them that increasing the amount of post-consumer content in their feedstock is beneficial. "That may mean paying the smelter more in the short run, the way we 'primed the pump' for other post-consumer recyclables in the 1990s," Ingenthron says.

"Ultimately, sustainability is defined by the buyer," Ingenthron continues. "We stay away from markets that add leaded content where it wasn't before or where the trend is to phase it out. 'The solution is in dilution,' they used to say in the 1980s, referring to programs that add small amounts of contamination to new products. That never turns out well," he continues. "Lead has to add value."

McFadden agrees that a key to the recycling process is not to hide the lead, but to put it into an application where it would provide a benefit. "If we are serious about recycling in this country, we have to develop manufacturers who are serious about using recycled material," he says.

Ingenthron points to companies such as Video Display Corp., Tucker, Ga., a company that rebuilds units around a reused CRT device. "The trick with those companies is not to send 'toxics along for the ride.' They can't fix [certain problems.]" he says. "There will always be a need to recycle half the leaded glass."

Nardone is optimistic when it comes to addressing the impending problem. "The product is going to be around for another five to eight years, hopefully eight years in North America," he says. "We're going to have enough time to solve the problem."

Exporting the glass may be part of the solution, but many recyclers can see problems inherent with this approach.

Nardone says in the long-term the industry will have to establish other North American markets for the glass or ship it to Chinese CRT manufacturers for reuse. "Even with the switch in technology, China will continue to make CRTs for other countries," he says.

BEYOND THE CRT

Dlubak Recycling, headquartered in Upper Sandusky, Ohio, recycles not only CRT glass, but also automotive, lighting, plate and specialty glass. Dlubak's Herb Schall says China is exerting its effect not only on CRT glass, but also on automotive glass.

Schall says the automotive plate glass industry has been holding up reasonably well, but that sources tell him that China is making its move.

"Traditionally, plate glass makers quote the Detroit folks on a cost basis to liquidate overhead and then make their money on the aftermarket," Schall says. "The Chinese are attacking the aftermarket, starting with the high-volume areas, and bringing stuff in at less than half the cost. They will be driving some plate glass melters out in the future."

Schall says the fiberglass market is holding up well. "Unfortunately, it's our lowest margin. We don't make any money on this stuff," he says. "A lot of low-end glass can go into that market, so we need them."

He says the lighting industry is changing hands in the U.S., but that three manufacturers remain and continue to use cullet-General Electric, Osram and Westinghouse.

Michael Greenman, executive director of the Glass Manufacturing Industry Council, Westerville, Ohio, says flat glass companies normally do not take cullet from outside sources. According to a report prepared earlier this year by John Riendl, recycling manager for the Dane County (Wisconsin) Department of Public Works, the reasons include that glass recovered from buildings may have contaminants, such as PCBs, present.

"Flat glass, if it is to be recycled, probably has to be used by somebody who is making an alternative product, or it could be reused in fiberglass plants in some cases."

AN INDUSTRY RESPONDS

Michael Greenman of the Glass Manufacturing Industry Council talks about the industry's initiative to increase recycling on the Web at www.RecyclingToday.com.

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