

Plastic Recycling Is a Work in Progress

By CLAUDIA H. DEUTSCH

At first glance, plastics recycling looks like an economic and environmental success story.

Consider, for example, that about 25 percent of the polyethylene fiber in Tyvek — a DuPont product used in envelopes, disposable medical suits and insulation — comes from jugs that once held milk or water. Fleece garments are increasingly made of old soda bottles. "Plastic lumber," made in part from milk jugs, increasingly substitutes for wood in decking and outdoor furniture, and the Plastic Lumber Trade Association is testing the product for rot-resistant bridges.

EvCo Research, an Atlanta company, is using recycled beverage bottles to make water-repellent coatings on boxes for shipping fruits and meats. The TEWA Technology Corporation of Albuquerque is using shredded plastic in asphalt.

Yet few companies have achieved the economies of scale that could make recycling pay.

Manufacturers say they cannot get a stream of high-quality material at a reasonable price. Recycling companies say they cannot guarantee such a stream until sales grow robust enough to drive down costs.

"It's a chicken-and-egg situation," said Gil Friend, president of Natural Logic, an environmental consulting firm in Berkeley, Calif.

Two years ago, environmentalists, manufacturers and recyclers founded Business and Environmentalists in an Alliance for Recycling — known as BEAR — to jump-start plastics recycling. So far, it has only compiled data.

"We had a high objective, finding a way to recycle 80 percent of plastics," said the manager of the alliance, Edward T. Boisson, an environmental consultant in Pittsboro, N.C. "We didn't get there."

The results of the impasse are easy to spot. According to the Environmental Protection Agency, nearly 95 percent of the 24.2 million tons of plastic waste generated each year goes unreclaimed. Plastics already

take up a disproportionate amount of landfill space, and the glut is likely to worsen: studies show that as many as 500 million computers will be discarded over the next five years.

"Billions of pounds of plastics will not be dealt with in an environmentally benign way," said Ted Smith, executive director of the Silicon Valley Toxics Coalition, an environmental group in San Jose, Calif.

Manufacturers acknowledge the problem. Beverage companies, although opposed to the spread of bills mandating return deposits on bottles beyond the 10 states that have such laws, are setting up their own retrieval programs. On Jan. 8, carpet manufacturers, environmental advocates and regulators signed the National Carpet Recycling Agreement, to promote carpet recycling.

Electronics companies have started "take back" programs to collect discarded computers, printers and such. Similar programs are mandatory in much of Europe. Many companies are designing products to be easily disassembled, and stamping components with codes signifying their chemical composition.

But so far, few manufacturers are funneling all of their used plastics back into their products. PepsiCo ([news/quote](#)) experimented with a recycled bottle in the early 1990's, but "the economics were just not there," a spokesman recalled. Honeywell International ([news/quote](#)) tried making new fibers from old carpets; it "didn't pan out," a spokesman said, and Honeywell sold the business last year.

DuPont has reclaimed 72 million pounds of carpet in the last 10 years — enough to win it awards, but a tiny fraction of the four billion pounds of carpet that Mark C. Ryan, manager of environmental initiatives for Dupont Commercial Flooring, said wound up in landfills each year.

"Carpet recycling hasn't grown as fast as people expected, because the economics are fragile," he said.

Economics are not the only problem. The customers of Collins & Aikman Floor Coverings, a carpet

manufacturer in Dalton, Ga., provide an inexpensive stream of used recyclable carpets. Still, some 40 percent of the fibers in Collins carpets are virgin plastic — and will be, until Collins is certain that its suppliers have perfected their recycling processes. Collins is a unit of Quad-C.

"We can't take a chance of defects affecting quality," Lee H. Schilling, a senior vice president, said.

That concern is even more prevalent in the electronics industry. Each month, Hewlett-Packard ([news/quote](#)) ships 200,000 pounds of plastics from discarded computers and printers to recyclers. But it is turned into carpet backing and fuel pellets. Hewlett says the old plastics are a mélange unsuitable for new products.

"It would only make sense if we could make all of our products out of one uniform batch of recycled plastics," said Renee St. Denis, who, as Hewlett's end-of-life process manager, grapples with such issues.

To make matters worse, even recycling's most ardent supporters often squabble among themselves. Beverage companies detest bottle bills; other users of recycled plastics want them passed. Environmental advocates want beverage companies to recycle old bottles into new ones, while carpet companies want the old bottles for themselves.

Industry truces would not solve recycling's volatile economics. Virgin plastics are made from oil, recycled plastics from trash, so logic would suggest that recycled materials would be cheaper. But it is costly to collect, transport, sort and clean discarded plastics. And every time oil prices fall — and they fell by more than one-third last year — recycled plastic loses value.

"Recycled plastics are a commodity, and commodity prices are low," said Richard McCombs, chief operating officer of MBA Polymers, a company in Richmond, Calif., with a patented technology for separating plastics from electronics devices.



Thor Swift for The New York Times

Javier Arbarca checks on plastic being recycled at MBA Polymers in Richmond, Calif. "Recycled plastics are a commodity, and commodity prices are low," said Richard McCombs, MBA's chief operating officer.



DuPont

An old carpet is separated at the DuPont Carpet Reclamation Center in Calhoun, Ga. DuPont has reclaimed 72 million pounds of carpet in the last 10 years, only a tiny fraction of what winds up in landfills.