Giving Plastic a New Life

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Quick: What's the most expensive part of your printer? The printheads? The chips? The wiring? Nope. It's the plastic, according to Mike Biddle, CEO of MBA Polymers. And it isn't getting any cheaper.

The cost of virgin plastic has doubled over the past few years, thanks to rising oil prices and soaring global demand. China has become the second-largest plastics consumer behind the United States, and has to import half of what it uses. At the same time, the European Union is phasing in regulations that eventually will require manufacturers to foot the bill for recycling their products. Naturally, these companies want to minimize those costs.

MBA Polymers wants to help them. The Richmond, California-based company has developed a process to recycle the kinds of plastics found in desktop printers, computers, and other electronics equipment.

Recycling plastics seems like a logical solution. But separating and recycling high-grade hard plastics isn't easy. They're not metallic, so you can't pick them apart with a magnet. And the densities generally don't vary enough to separate them by floating. "We're the company stepping up to sort it out," says Mr. Biddle, speaking on his cell phone from a German hotel room while on a trip to raise a fifth round of financing for his company.

Mr. Biddle founded MBA Polymers in 1994, not long after he finished his M.B.A. at StanfordUniversity. His employer at the time, Dow Chemical, decided to move its plastics lab from Walnut Creek, California, to Michigan and Texas. Mr. Biddle liked California better. So he stayed and set up a plastics recycling research consultancy and improvised a laboratory in his garage. As his work progressed, Mr. Biddle, who has a Ph.D. in plastics, started to receive grants to work out more of his ideas on durable plastics recycling. This meant he could hire back some of his old Dow Chemical lab-mates, including long-time partner Trip Allen.

Since then, Mr. Biddle has raised $28 million for MBA Polymers from far-flung sources. The last round was led by Asia West, a firm that specializes in cleantech. Friends and family invested $1.4 million, and $7 million came from grants and running material separations for other companies. Add to that contributions from Band of Angels, Aloe Group, International Finance Corporation (a member of the World Bank Group), American Industrial Partners, Flextronics, and General Electric.

General Electric

Mr. Biddle explains his company's 40-step process: First, hand-sized lumps of plastic are ground into fingernail-sized flakes, exposing any metal and paper for removal. Second, the mixture of hard plastics is separated according to type and grade of plastic. Lastly, each grade is melted and its properties adjusted using additives.

The use of additives is an area of "head-to-head combat" between environmentalists and companies involved in recycling, due to health and safety concerns over the chemicals used in the process, says Steve Wyatt, program director of the Computer Recycling Center, a nonprofit based in Santa Rosa, California. However, he has worked with MBA Polymers and can say nothing negative about the company.

Another sticking point in the plastics recycling arena is tipping fees, the cost of collecting, transporting, and, in some cases, buying material. "If you get paid to take the raw materials away as well as making money from the product, that's a very interesting business model," says Ron Pernick, co-founder and principal of cleantech research company Clean Edge. Mr. Biddle is well aware of this, and is working to take advantage of the opportunity wherever possible. While the U.S. has an abundance of available plastic, it is very expensive to transport. As a result, MBA Polymers has looked to Europe and Asia.

At first glance, MBA Polymers is not the sort of firm that makes venture capitalists salivate. It's a capital-intensive project: One of its two full-scale plants, currently in the latter stages of construction, costs €17 million ($20.5 million). VCs also like to stay within the comfort zone of high tech rather than heavy industry, particularly in cleantech, where there are many novice players.

"It's hard to find VCs who invest in something with bricks and mortar, although at the time of the dot-com crash they were running to us saying, 'Oh, you're a real company, you've got a plant,'" says Mr. Biddle.

However, MBA Polymers says it can make a profit while selling durable plastics to manufacturers at 30 to 40 percent below the price of new material. And it has proved its concept during eight years of operating a trial plant. In March, it was voted the most promising investment in cleantech by the 400 attendees of the Cleantech Venture Forum conference in San Francisco. Now Mr. Biddle and his colleagues just have to deliver on that promise.