



## Expanding the market to recover plastics from recycled durable goods

by Brian R. Hook

With the right mix of technical expertise and financial backing, MBA Polymers Inc. is opening manufacturing facilities around the globe that are designed to recover plastics from durable goods, including automobiles, computers, electronics and even large appliances.

MBA Polymers is based in Richmond, California, where it performs its research and development and operates its pilot facility. Over the past twelve years MBA has invested over \$30 million to develop an automated process to recover plastics from durable goods streams containing commingled materials.

It accepts shredded plastic materials from a variety of sources and converts that material to high-value engineering plastics for reuse.

Darren Arola, global director, product development and sales, at MBA said metal, electronics, and appliance recyclers ship MBA truckload quantities of mixed scrap plastics. MBA then uses proprietary mechanical recycling

technologies to sort and separate the plastic materials by type and grade without the use of chemicals.

MBA then either sells the plastic regrind to other users or extrudes the material itself and engineers the regrind material to meet specific application requirements.

“Our process uses less than 10 percent of the energy compared to a virgin resin plant starting from crude oil. For every pound of plastic we recycle we save two to three pounds of greenhouse gases from entering the environment,” Arola said.

The Richmond facility could produce anywhere between 5,000 to 10,000 metric tons of material per year. But that is only a fraction of the company’s capacity at its new plants recently opened in China and Austria. “Our first two overseas manufacturing plants are designed for 40,000 metric tons per year feed capacity,” Arola said.

The first large scale manufacturing



Extrusion lines at MBA's plant in China.

—Photo courtesy of MBA Polymers, Inc.

plant was opened by MBA in the Nansha Development Area in Guangzhou, China and started operations late last year. The facility is a joint venture between MBA and Guangzhou Iron and Steel Enterprises Holdings Ltd. The joint venture operation is called GISE-MBA New Plastics Technology Co. Ltd. (GMP).

The Nansha Development Area is one of the most rapidly developing economic zones in southern China. Other international companies in the area include Toyota, Honda,

and BASF. GE Plastic’s largest compounding plant is GMP’s next door neighbor.

MBA is in the process of opening another facility in Kematen, Austria. The facility is another joint venture, this time with Mueller-Guttenbrunn GmbH. The new company is called MBA Polymers Austria - Kunststoffverarbeitung GmbH.

This plant will benefit from the European directive that mandates a large scale take-back and recycling of durable goods, such as appliances

and electronics.

Arola described MBA as a key player in the durable goods recycling loop. “We work with others to provide a solution for their plastic-rich streams,” Arola said, noting that both partners overseas are metal recyclers who run shredding operations. Byproducts from these facilities are often plastic mixtures that are rich in polypropylene (PP), high impact polystyrene (HIPS) and acrylonitrile butadiene styrene (ABS), all of which MBA recovers in their process.

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The scrap material is then converted into grades of PP, HIPS and ABS plastic differentiated by their physical properties for reuse. "From a mechanical-property standpoint, we can meet or exceed the properties of virgin resins," Arola said. But he admitted from a physical-appearance standpoint there are some limitations with recycled plastics such as colorability. "We don't break down the plastic to a molecular scale. There are additives and pigments put into plastics that we don't remove, although we are capable of sorting out these different grades of plastic from one another in our process," he said.

"If someone wanted a natural color or very bright-white recycled plastic from MBA, at this point it would be hard to provide that," Arola said. He said that is not due to the technology, but rather due to the source material. "What you source influences what you can supply both on a quality or grade perspective and also with respect with color,"

he said. Arola noted that additives and colorants can be used during the extrusion process to engineer the plastic for customers' applications, but you have to consider both technical and economic constraints. Without the use of colorants, MBA's extruded end products are typically gray in color.

Arola said there is room for expansion. "The company's objective is five plants in five years," he said, adding that the China factory is currently sold out. "Essentially, we can't make enough materials to meet the demand in the local province," he said. Arola said they hope to open new plants in Europe and Asia, plus eventually the United States.

Part of MBA's recent funding came from Asia West LLC in Greenwich, Connecticut, a venture capital firm with \$32 million under management. "A core focus of our fund is recycling space and we knew we wanted to be in durable plastics and MBA is by far the world leader in this," said Sanford Selman, managing director.



Goods created from customers' applications, using 100% MBA plastic.

—Photo courtesy of MBA Polymers, Inc.