

BECAUSE  
SUSTAINABILITY  
MATTERS





1992

Mike Biddle begins work on plastics separation

Richmond, CA - USA



"Our aim is to be the leading global plastics recycling company in the production of post-consumer recycled resins recovered from highly complex waste and to operate the most advanced plastics recycling plants in the world."



Nigel Hunton, CEO

# Quality, Economics and Sustainability - our unique DNA

We are the world leader at producing post-consumer recycled plastics from end-of-life durable goods. Our pure, consistent, and reliably available materials provide our customers cost advantage and price stability. We source 100% post-consumer feedstock diverted from landfill or incineration.

Our proprietary processes use less than 20% of the energy needed to produce virgin plastics from petrochemicals, saving between 1-3 tons of CO<sub>2</sub> for every ton of virgin plastics we replace.



2002



Edison Award for Innovation

2005



2006



Intel Environmental Award



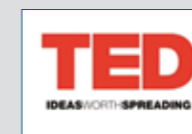
2009



2010



2011



2012



# The problem



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# Our challenge

Less than 10% of these plastics from complex waste streams such as durable goods are currently recycled. In comparison, over 90% of the metals, such as steel, copper and aluminum, are recycled from these same complex waste streams.

# The solution

**MBA Polymers** broke the code and figured out how to recover pure plastics from plastics rich shredder residue.

**More sustainable in every sense.**

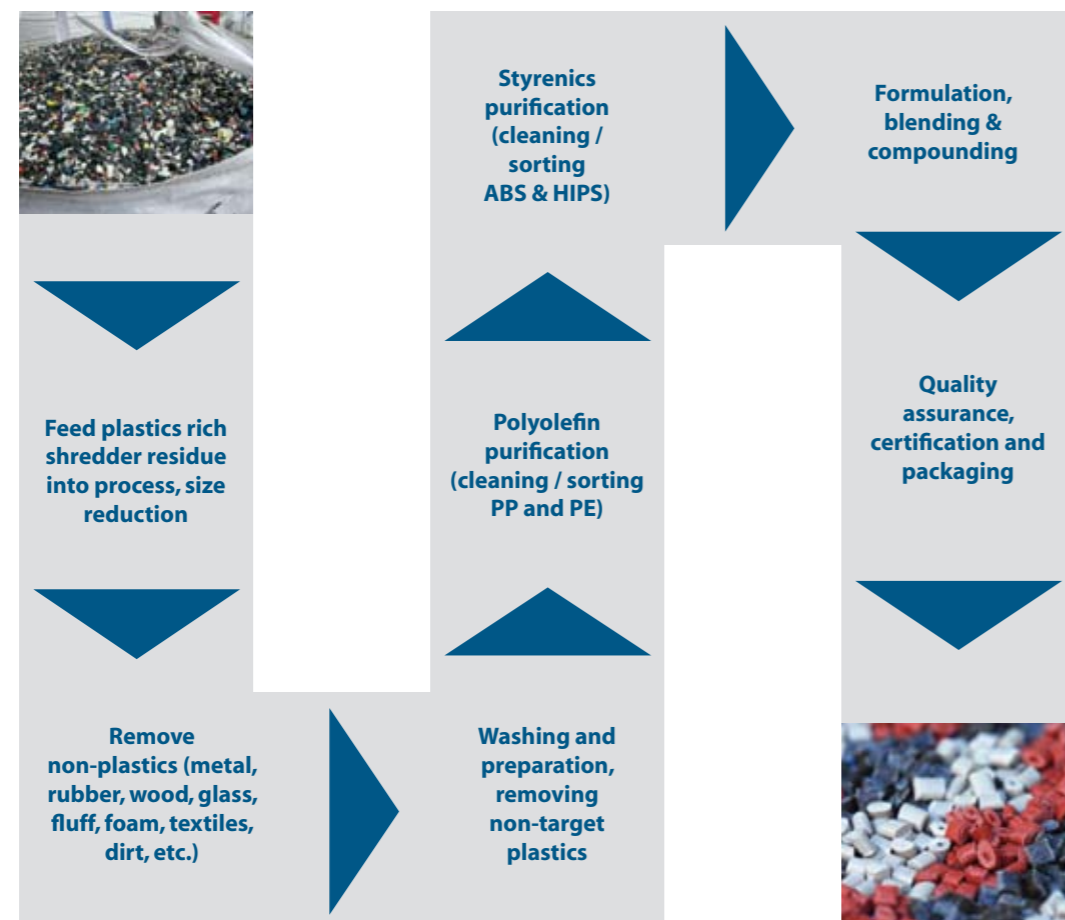
Our advanced mechanical processes first separate polymeric materials from highly complex waste products, then further clean, sort and purify the resulting plastics by type and grade until they're ready for re-use in demanding applications - replacing virgin plastics and closing the loop.

We recover the most prevalent and valuable materials from our feed

streams, often in multiple grades and colors:

- ABS (acrylonitrile butadiene styrene)
- HIPS (high impact polystyrene)
- PP (polypropylene)
- HDPE (high density polyethylene)
- Mixed by-product plastics
- Rubber
- Residual metals

**We** are changing the way the world sees plastics recycling, creating highly valuable plastic resins at a significant environmental and economic benefit to our customers – all in a sustainable way.



# Our Technology



## QUALITY

Each of our plants has a fully equipped laboratory for incoming feedstock analysis, real-time separation analysis at multiple check-points and testing of finished goods to ISO standards

# Our global reach

## CHINA



**MBA Polymers China** is a JV with GISE (Guangzhou Iron & Steel Enterprises), South China's largest steel company



- 20,000 sqm
- Annual processing capacity of 40,000 tons
- Feedstock is sourced from WEEE (Waste Electrical & Electronic Equipment)
- 150 employees
- Plant became operational in 2006

### **MBA Polymers China**

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Nansha, Guangzhou 511458  
China  
Tel: +86 (0) 20-84682388  
Fax: +86 (0) 20-84680038

## AUSTRIA



**MBA Polymers Austria** is a JV with Müller-Guttenbrunn, Austria's largest metal recycler

- 20,000 sqm
- Annual processing capacity of 55,000 tons
- Feedstock is sourced from WEEE
- 80 employees
- Plant became operational in 2006

### **MBA Polymers Austria**

Kunststoffverarbeitung GmbH  
Wipark, 12. Straße 8  
3331 Kematen / Ybbs  
Austria  
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## UNITED KINGDOM



**MBA Polymers UK** is a JV with EMR (European Metal Recycling), one of the world's largest automotive recyclers

- 60,000 sqm
- Annual processing capacity of 80,000 tons
- Feedstock is primarily sourced from ASR (Automotive Shredder Residue)
- 70 employees
- Plant became operational in 2011

### **MBA Polymers UK Ltd**

Sandy Lane  
Worksop, Nottinghamshire S80 3ET  
England  
Tel: +44 (0) 1909 504900  
Fax: +44 (0) 1909 504938



# SOURCING

## Our strategic focus

### Electronic Shredder Residue (ESR) from e-Waste and Automotive Shredder Residue (ASR) from end-of-life vehicles

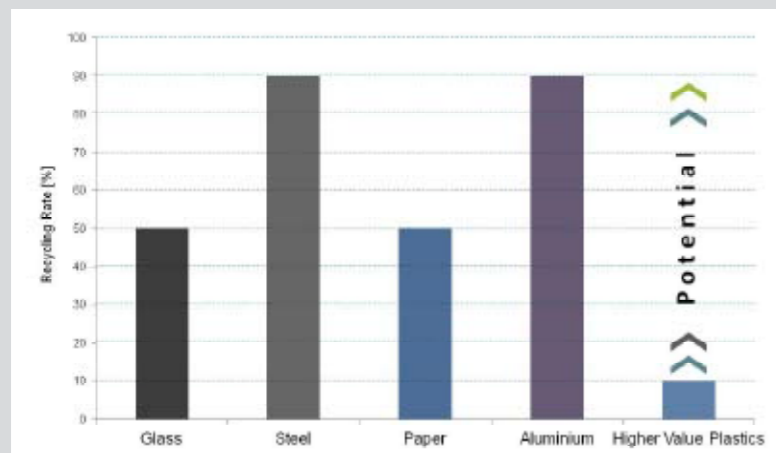
**We source** raw materials directly from recyclers of WEEE and ASR. These highly complex waste streams contain moderate levels of contaminants such as metals, rubber, wood, printed circuit boards, glass, foam, foils, labels and fabrics.

**The European WEEE Directive** (Waste of Electrical and Electronic Equipment) sets targets for collection, recycling and recovery of all types of electrical wastes of which plastics are a major constituent.

**ASR** is the non-metallic fraction of the feed material removed by the metal recyclers' shredding process.

**The aim of the European Directive on End-of-Life Vehicles** is to increase the rate of reuse and recovery to a minimum of 95% by 2015.

The recovery of plastics from ASR is the most significant factor in helping to achieve this target.



EvoSource™



## Global Product Portfolio

**MBA offers an economic and sustainable alternative to petrochemically produced plastics with high-quality post-consumer ABS, HIPS and PP**

### Austria and China

Our facilities in Kematen / Ybbs in Lower Austria and Guangzhou, China, produce high-quality post-consumer ABS, HIPS and PP resins in various colors for use in electronics, appliances, consumer products, building products and even automotive components. The product portfolios consist of various general purpose grades and premium products that are either UL-HB recognized, impact or flow modified are offered under the EvoSource™ brand.

### United Kingdom

Our newest and largest plant, which is located in Worksop, Nottinghamshire, has an initial processing capacity of 60,000 tons per year and is expandable to 80,000 tons. We enable major automobile, appliance and other durable goods manufacturers to “close the loop” and make their products more sustainable by turning this plastics-rich shredder residue into new high impact PP, filled PP, ABS, HIPS and HDPE.

Technical Data Sheet			
PP 2126			
Description			
A solid consumer recycled polypropylene copolymer with higher impact for general use. Available in standard black reference (S214).			
Mechanical Properties			
Property	Value	Unit	Test Method
Density	0.91	g/cm <sup>3</sup>	MMA Method
Thermophysical			
Melt Flow Rate (230°C / 2.16 kg)	8.8	g/10 min	ISO 1133
Mechanical			
Tensile Strength at Yield (23°C)	20	MPa	ISO 527-2/3
Flexural Modulus (23°C)	1000	MPa	ISO 178
Impact			
Notched Izod Impact Strength (23°C)	20	kJ/m <sup>2</sup>	ISO 180/1A
Unnotched Izod Impact Strength (23°C)	6	kJ/m <sup>2</sup>	ISO 180/1A
Thermal			
HDT @ 0.45 MPa, unmodified	51	°C	ISO 75-1A
Vicat softening temperature VST(A)50	135	°C	ISO 308
Vicat softening temperature VST(B)50	80	°C	ISO 308
Flammability			
Glow Wire Flammability Index (2.0kW/5s)	850	°C	IEC 60695-2-12

Technical Data Sheets are available on request.

Please contact us at [sales@mbapolymers.com](mailto:sales@mbapolymers.com)

## Using our advanced products ...

Our clean-tech facilities in Austria, China and the UK have an annual processing capacity of 175,000 tons and represent the most advanced plastics recycling facilities on the planet. We

are selling the purified post-consumer recycled plastics back to some of the world largest manufacturers of electronic appliances, automobiles, and office and home equipment.



### Green Range vacuum cleaner components

**EvoSource™ ABS 4136**  
Electrolux Floor Care and Small Appliances AB, Stockholm, Sweden



### Office stamp components

**EvoSource™ ABS 4134**  
Trodat GmbH, Wels, Austria



### Office products

**EvoSource™ HIPS 3122 E & PS 3122**  
Spichtig AG, Steinen Switzerland

... for demanding applications

# Our unique DNA



- ▶ Sourcing 100% post-consumer feed-stock, diverted from landfill or incineration
- ▶ Low emission and low energy manufacturing process
- ▶ Support customers to comply with external drivers, e.g. Blue Angel, EPEAT
  
- ▶ Price stability
- ▶ Secure supply
- ▶ Growing availability
  
- ▶ Batch to batch consistency
- ▶ Successfully replacing virgin plastics
- ▶ RoHS; REACH
- ▶ **EvoSource™** premium grades for applications demanding
  - UL-HB recognition
  - higher impact,
  - higher flow
  - demanding colors



Dr. Michael Biddle, Founder & President

**“Plastics are too valuable of a resource to bury or burn. So we developed and commercialized technologies that close the loop by mining plastics and other valuable resources from some of the most complex solid waste streams on the planet and creating products that directly replace virgin materials.”**





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