



From Nature to Nature

Biodegradable

At end of its useful life, Mirel will biodegrade back to nature.



Biobased

Made from nature, starting with corn.



Corn Sugar

Corn Sugar is used as feedstock for Mirel.



Products

Mirel can be used for everyday items, reducing petroleum usage and GHG versus traditional plastic.



Fermentation

Through a patented process, microbes transform sugar into Mirel bioplastics.



Recovery

Mirel is made into pellets.



**Mirel is marketing and sold through Telles,
a Metabolix and ADM joint venture.**

For information, please visit:

www.mirelplastics.com

www.metabolix.com

www.admworld.com



Global Plastics Problem

Plastic waste is rising in Europe and around the world. According to the European Environment Agency (EEA), over 306 million tons are estimated to be collected each year. Landfills remain as the dominant waste disposal method while recycling is minimal in many European countries.

In the United States, the volume of plastics in the Municipal Solid Waste stream has increased from less than 1% in 1960 to around 11.8% in 2005. The U.S. Environmental Protection Agency (EPA) reported that 28.9 million tons of plastic was deposited into the waste stream in 2005. Despite intensive efforts to promote collection and recycling, only 5.7% of plastic solid waste in the U.S. was recycled and diverted from landfills, while many plastic items such as bottles, caps, cups, lids, straws and grocery bags remain as litter in the environment often accumulating in rivers, oceans and wetlands.

In addition to causing unsightly litter, plastics also contribute to health and national security concerns. Nearly all plastics are derived from petroleum-based sources and the production of plastic is a significant contributor to greenhouse gas emissions. Consumers are increasingly concerned with environmental health, climate change, and the growing burden on waste disposal systems around the world.

Sustainable Solution

Mirel is a versatile family of bioplastic materials that can be processed as traditional thermoplastics into a broad range of products. This breakthrough technology has the potential to provide environmentally-conscious companies and consumers with a renewable and sustainable alternative to traditional petrochemical-based plastics, making a positive impact on climate change, pollution and energy security. Unlike conventional petroleum-based plastics, Mirel is made from nature's renewable resources such as sugar and vegetable oils, and biodegrades in a wide range of environments including soil, home compost, industrial compost, and in both fresh and salt water. From its origin, Mirel is designed to fully biodegrade in diverse natural environments when disposed of properly.

Mirel grades can be used in the following conversion processes:

- Injection molding
- Extrusion Coating
- Sheet extrusion and thermoforming
- Cast and blown film

Product Applications

- Packaging: compostable bags, jars and tubs, detergent sachets, beverage cartons, cosmetic containers
- Consumer goods: personal hygiene products, flushable household products, gift cards
- Consumer electronics: computers, portable electronics, television and entertainment components
- Agriculture and horticulture: degradable stakes, erosion control netting, plant pots
- Marine and water: fishing netting and line

Mirel biobased plastics provide resistance to both heat and hot liquids, and have physical properties ranging from flexible to rigid. As a result, Mirel may replace olefin and styrenic based polymers in a variety of applications and be transformed into many everyday products and packaging.

Metabolix

Founded in 1992, Metabolix, Inc. is an innovation driven bioscience company focused on providing sustainable solutions for the world's needs for plastics, chemicals and energy. The Company is taking a systems approach, from gene to end product, integrating sophisticated biotechnology with advanced industrial practice. Metabolix is now developing and commercializing Mirel™ bioplastics, a sustainable and biodegradable alternative to petroleum based plastics. Mirel is suitable for injection molding, cast and blown film, sheet, extrusion coating, and thermoforming. Metabolix is also developing a proprietary platform technology for co-producing plastics, chemicals and energy from crops such as switchgrass, oilseeds and sugarcane.

Metabolix and Archer Daniels Midland Company (ADM) are commercializing Mirel through a joint venture called Telles. The first commercial scale Mirel production plant is being constructed adjacent to ADM's wet corn mill in Clinton, Iowa. The plant is expected to begin operations in late 2008 and is designed to produce up to 110 million pounds of Mirel annually. Mirel will reduce reliance on petroleum and decrease environmental impacts relative to conventional petroleum based plastics.

For more information about Metabolix, please visit www.metabolix.com; for more information about Mirel, please visit www.mirelplastics.com