Biodegradable Design

MEAGHAN ZIEMBA, Associate Editor, Product Design & Development (PD&D)

Plastics are everywhere in our daily lives; from the packaging that keeps our cold cuts fresh to the containers we use to store out personal items and to discard our trash.

According to Anne Trafton, MIT News Office in *One Word: Bioplastic* [1], the United States produced 101.5 billion pounds of plastic in 2008, which is only a small percentage of the 540 billion pounds of plastic that is produced each year worldwide.

With the amount of plastic being produced and consumed each year, it is no wonder that things have started piling up, literally.

Plastic Problem

Plastic is a synthetic or man-made polymer that can take hundreds of years to biodegrade, producing an enormous waste issue worldwide. Certain companies have taken the initiative to produce biodegradable plastics, utilizing raw material resources that biodegrade back into the environment naturally.

“All products should make sense socially,” says Frederic Scheer, Chairman/CEO/Founder of Cereplast. Plastic products manufactured with fossil fuels,” explains Sheer, “create higher footprints by increasing carbon dioxide emissions in the air; have toxic components, which can cause health risks for consumers; and have chemical additives that can damage the environment.

Amy Maddock from Grafix Plastics agrees. “As plastic products are responsible for significant amounts of post-customer and post-industrial waste, we [need to] provide a more environmentally responsible product to help reduce some of the waste in landfills.”

Natural Components

Biodegradable plastics eliminate the use of fossil fuels and petroleum. They are composed of renewable raw materials including algae, tapioca, corn, wheat and potatoes.

Plastics made them renewable resources are designed to compost in environments with fair amounts of heat and moisture.

“Biodegradable plastics can break down in the form of water, biomass and carbon dioxide in less than 180 days,” says Scheer. “This is a great advantage over conventional plastics that are produced from oil and can take hundreds of years or more to break down.”

Scheer hopes that the world will realize that it makes more sense to consider using alternative feedstocks in plastic production.

According to Maddock, biodegradable plastics allow more environmentally responsible options for displays, overlays and packaging.

“Obviously the large quantities of displays/signs and packaging that are disposed of create an important demand for products that are biodegradable,” says Maddock.

Positives of Biodegradable Design

Biodegradable design has substantially decreased environmental carbon footprints compared to traditional polyethylene and fossil fuel resins.

For instance, a kilo of polypropylene can generate about 3.15 kilos of carbon dioxide. One kilo of hybrid resins can produce 55 percent less carbon dioxide, and one kilo of compostable resins produces 95 percent less carbon dioxide than current polypropylene resins.

Scheer also explains how the production of bioplastics is a lot better than the production of conventional resins.

The number of facilities being used to produce biodegradable plastics is 50 percent lower than the number of facilities being used to produce fossil fuel-based plastics.

Future of Biodegradable Design

In five to ten years, Scheer hopes that all traditional chemical companies will come to bioplastics and embrace the work that Cereplast is doing. Scheer believes the

design will be the same in terms of construction and durability, though the materials will be more suitable for the environment.

Maddock believes that as manufacturers become more concerned the environment, companies will select products that help decrease their carbon footprint.

“It is also a benefit and therefore a marketable selling point to provide more environmentally responsible products to consumers,” says Maddock. “Consumers would prefer to buy more responsible products if quality and price are not too dramatically affected.”

While the production and purchasing of biodegradable products is a little more expensive then traditional options, costs will decrease as the demand for bioplastic supply continues to increase.

“Bioplastic is the plastic of the 21st Century,” claims Scheer. “It will basically take over the entire plastic industry; just a questions of time.”

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http://www.chem.info/articles/2010/11/biodegradable-design

Links:
[1] http://web.mit.edu/newsoffice/2009/bioplastics.html