

# How MHG's PHA Biopolymers Make Plastic Healthy for People and Other Living Things

## From Petro-Plastics to BioPlastics

By Laura Mauney

Decades ago, plastic was thought to be a miracle substance, that which brought us unbreakable bottles and jugs, safer food storage containers, cheaper toys, non-leaking trash bags, disposable diapers, disposable medical implements, disposable plates, cups and flatware, disposable grocery bags that did not destroy trees, all manner of electronic devices, and a multitude of other products and packaging for work, play, food and drink, many of which were designed for single use only.

That's a lot of plastic stuff making life easier in a lot of different ways.

### **What on Earth, then, is Wrong with Plastic?**

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Nothing, actually.

Plastic is a good idea. Throwaway dishware for picnics and parties makes having fun more relaxing, which is good. Bottles and cups that don't shatter into deadly pieces of glass when children drop them is good. Disposable diapers that make life easier and cleaner for working parents is good. Protecting food from bacteria, mold and viruses is good.

### **So, GOOD! Why, then, do People Gripe about Plastic?**

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Beyond the massive trash pileup of disposable plastic items, the bellyaching about plastic lies with petroleum and other toxic chemicals that historically have been used to make it.



Beverage containers made from MHG PHA bioplastic do not contain toxins.

Even when plastic is stabilized, the toxins can leach carcinogens and other poisons into food, skin, soil, water systems, oceans, and the air. Many of the chemicals disrupt hormonal functions, and are believed to contribute to the development of cancer.

According to the [Breast Cancer Fund](#)

(<http://www.breastcancerfund.org/clear-science/environmental-breast-cancer-links/plastics>), five chemicals found commonly in plastics increase cancer risk:

- Bisphenol A (BPA)
- Phthalates
- Vinyl Chloride
- Dioxin
- Styrene

Furthermore, in his 2008 article for [Scientific American](#) (<http://www.scientificamerican.com/article/plastic-not-fantastic-with-bisphenol-a>), David Biello reported on studies that determined that *constant* exposure to toxins in plastic is the real problem – not the amount of exposure per event:

A recent report in the journal *Reproductive Toxicology* found that humans must be exposed to levels of BPA at least 10 times what the EPA has deemed safe because of the amount of the chemical detected in tissue and blood samples. “If, as some evidence indicates, humans metabolize BPA more rapidly than rodents,” wrote study author Laura Vandenberg, a developmental biologist at Tufts University in Boston, “then human daily exposure would have to be even higher to be sufficient to produce the levels observed in human serum.” – David Biello

In other words, because plastic has become so amazingly useful in so many walks of life, humanity and the planet are exposed to toxins leached from plastic every second of every hour of every minute, every day.

The health problem with plastic may sound like a futuristic horror reality series in the making, but in the real world of science and manufacturing, quite the opposite is true.

## **Biopolymers are the New Miracle of Plastics**

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Biopolymers, also known as bioplastics, offer a chance to rapidly change the direction of plastic product manufacturing to a non-toxic scenario, with no health risks and no negative environmental impact.

More importantly, when adopted for wide-spread use, bioplastics will dramatically reduce the constant exposure of humans to toxins leached into food products, or directly into our bodies, from chemical plastics.

MHG PHA biopolymers (<http://www.mhgbio.com/mhg-products/mhg-products-pha-biodegradable-plastics/>) offer the first 100% plant-based, biodegradable solution to the challenges facing manufacturers and packagers whose businesses rely on plastic.



Previous efforts to introduce biodegradables into the plastic dilemma have seen limited success, at best. Biodegradable substances are commonly added to chemical plastics to speed up deconstruction in landfills, a solution that assists the problem of trash buildup, but does little to resolve toxic leaching into the soil.

Compostable, cornstarch based cups, flatware and trash bags are available for sale in limited quantities, but can cost up to twice as much as comparable products made of chemical plastics.

Some compostable products, even worse, begin to degrade when exposed to humidity, or melt immediately when exposed to heat.

Many biodegradable plastics are often manufactured abroad. Beyond quality risks, overseas shipping of anything to the U.S. exacerbates environmental impact issues, due to the fuel required.

Even less encouraging is the toxic truth that most biodegradable plastics are manufactured with toxic chemicals and processes that virtually neutralize any positive environmental impact of the result.

Locally sourced, U.S.A. made MHG PHA bioplastic, on the other hand, is cost-effective, durable and long-lasting. Better yet, [MHG PHA is produced completely without toxic chemicals \(http://www.mhgbio.com/mhg-products/mhg-products-pha-biodegradable-plastics/\)](http://www.mhgbio.com/mhg-products/mhg-products-pha-biodegradable-plastics/), and with eco-friendly practices, including cold pressing, water based purification and reactive extrusion.

## **MHG PHA Bioplastic Offers the Perfect Organic Symbiosis: Durable, Non-Toxic Food Packaging and Dining Implements made from a Food Crop**

“From the farm, to the table, back to the farm again, it’s a completely renewable food source.” – Dr. Paul Pereira, CEO of MHG

Canola based [MHG PHA bioplastic is approved by the FDA for food substance contact \(http://www.mhgbio.com/mhg-sustainability/mhg-certifications/\)](http://www.mhgbio.com/mhg-sustainability/mhg-certifications/), including any product that touches food and beverages:

- Can and carton lining
- Beverage containers, cups & straws

- Disposable dishware & utensils
- Food packaging
- Food storage containers

Better yet, MHG biopolymers are fully compostable, meaning that the products naturally decompose in landfills. When degraded, MHG PHA bioplastic can be used to enrich soil safely, and does not leach toxins into groundwater or float around for centuries in the oceans as tiny toxic particles.

MHG PHA bioplastic is also cost competitive with chemical plastics because it is locally sourced from U.S.A. grown canola, and created with processes that only involve energy and water.

MHG PHA bioplastic can further be adapted to a wide array of manufacturing requirements and strengths, is durable and long-lasting, stands up to impact when dropped, and doesn't degrade on the shelf prematurely.



MHG bioplastic is durable and cost competitive.

So imagine: How much litter and landfill pileup will be eliminated because we are using biopolymers that vanish organically back into the natural world with no toxic effect? What will the impact be on human health and the health of the planet?

In the weeks and months ahead, this blog will delve deeper into the science, applications and environmental impact of MHG PHA bioplastics. Please get in touch with [MHG Biopolymers \(http://www.mhgbio.com/contact-mhg/\)](http://www.mhgbio.com/contact-mhg/) to learn more about investment opportunities and PHA biopolymer raw material ordering.

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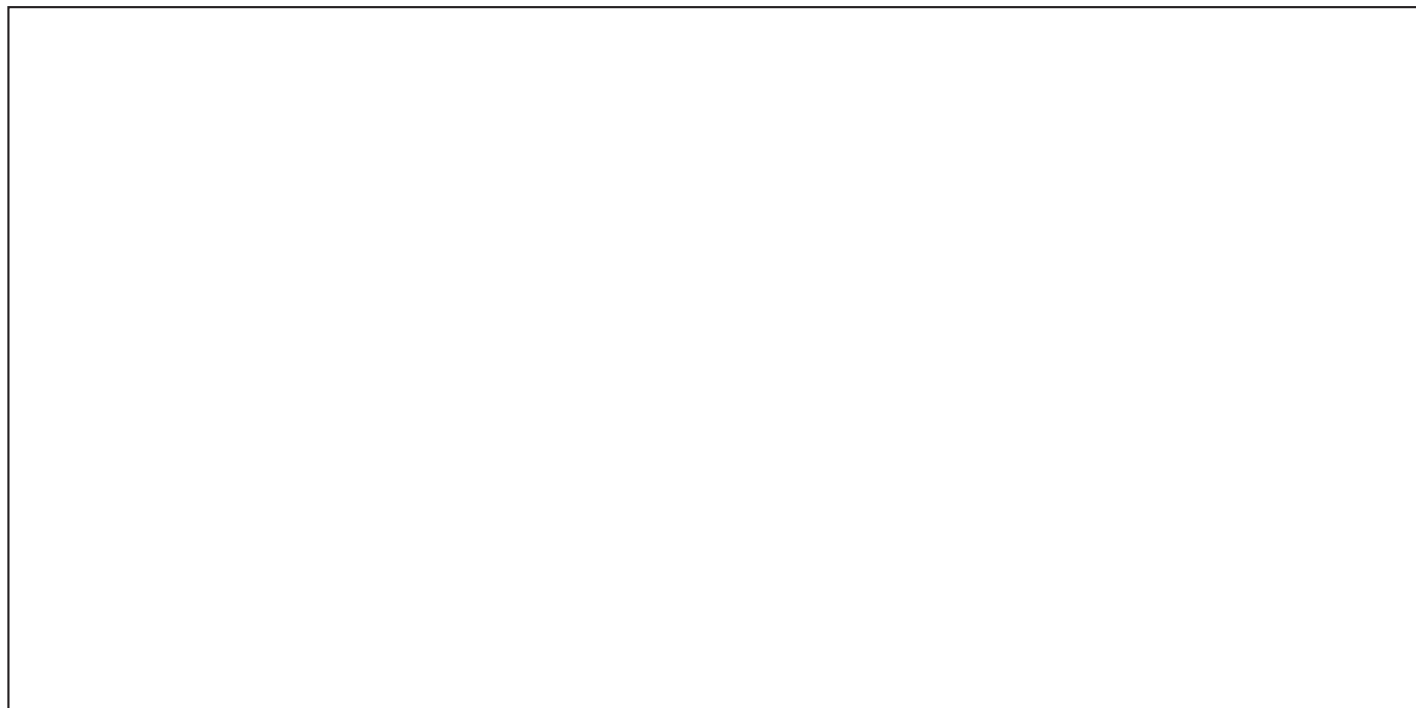
## Does Your Company Manufacture Plastic Products?

Please visit **MHGBio.com** (<http://www.mhgbio.com/>), to find out more about how biodegradable plastics from MHG can be adapted to a wide range of product manufacturing and packaging requirements.

**Learn more** (<http://www.mhgbio.com/mhg-sustainability/mhg-certifications/>) about how MHG's biodegradable PHA plastic is **Certified** (<http://www.mhgbio.com/mhg-sustainability/mhg-certifications/>) for all six levels of biodegradability and compostability.

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