

## PHBV-Based™ Biopolymer Compounds

Working with PolyOne, Design Ideas chooses a proprietary, bio-based polymer compound to create bathroom accessories that offer consumers an environmentally sound option

### Situation

With the slogan, “We Make *Things* Interesting™”, Design Ideas, Ltd. is a fast-paced, growing product design firm that conceives and creates home and office accessories. To further its own corporate social responsibility goals and meet growing consumer demand for environmentally responsible products, the company sought to develop a “green” solution for the house wares industry, ultimately focusing on a line of bathroom accessories. The objective was to develop products – including a soap/shampoo dispenser, toothbrush holder, wastebasket and cup – differentiated not only on the basis of renewable content and biodegradability, but high-end aesthetics as well.

Andy Van Meter, CEO of Design Ideas, said, “We take pride in making our products in a socially responsible way. In the case of the new bathroom accessories line, we were having difficulty finding a source of resin that could meet our sustainability goals while delivering on the functional requirements of the application. Many candidates could not stand up to the moist, warm conditions of a bathroom.”

In addition to being environmentally responsible, the material needed to provide excellent injection molding performance. It also had to offer stiffness, durability, chemical and heat resistance (for automatic dishwashing), and come in vibrant, eye-catching colors.

### The PolyOne Difference

Design Ideas approached PolyOne with their challenge. After collaborating closely with Design Ideas and its molder, PolyOne worked together with a supplier of PHBV (poly-3-hydroxy butyrate-co-valerate)-based biopolymer resin – derived from 100 percent annually renewable resources such as starch – to develop the solution. PolyOne characterized the base resin and conducted a series of experiments to look at material refinements that would afford the right combination of processability and physical properties while retaining ultimate biodegradability. In addition, PolyOne pre-colored the compound to provide lot-to-lot color consistency and superior part appearance.

The PHBV-based technology leveraged for Design Ideas is another example of PolyOne’s innovative, eco-responsible solutions. When exposed to microorganisms in compost or soil, the PHBV-based material decomposes into carbon dioxide, water and biomass. However, it will not deteriorate in the open air or with ordinary use. The PHBV-based biopolymer can withstand temperatures of 110 C/230 F, and will continue to perform for years under normal conditions.



## Delivering a Value-Added Solution

The PHBV-based biopolymer compound has enabled Design Ideas to create a unique and attractive eco-friendly line of bathroom products while supporting its sustainability goals.

- **“Green” branding = new market penetration:** With the distinctive bathroom accessories, Design Ideas has created a new brand, EcoGen™, targeting consumers’ desire for eco-friendly products that do not compromise on style or quality.
- **Differentiated product line = higher price point:** Thanks to its unique value proposition, Design Ideas has been able to position its EcoGen products among such high-end house wares retailers as The Container Store.
- **Reliable product performance = enhanced consumer satisfaction:** The PHBV-based biopolymer was custom compounded by PolyOne to deliver practicality. The material is impact resistant, enhancing safety in the bathroom. Also, the material has passed a stringent dishwasher test involving multiple cycles, something that most other biodegradable polymer systems could not achieve.
- **“Green” product with vibrant colors = increased consumer appeal:** “Green” products are often less physically attractive than their “non-green” counterparts. The PolyOne precolored compounds used by Design Ideas in their EcoGen products provide consistent, vibrant, beautiful colors (including green) that keep their good looks even with regular use.

Design Ideas’ EcoGen line of accessories has received significant media attention and has proven very popular with consumers. The company aims to capture 10 percent of the specialty bath accessories market. Design Ideas plans to offer the products through a number of upscale retailers, starting with The Container Store. PolyOne enabled Design Ideas to create and launch a successful new product line, making a positive impact on the environment and further positioning itself for future growth and success.

“We chose to produce this new range of products from the most natural material we could find without sacrificing performance. Producing new products in an environmentally sound way is core to our mission. In PolyOne, we found a reliable partner that was

TM “We Make *Things* Interesting” is a trademark of Design Ideas, Ltd.  
TM “EcoGen” is a trademark of Design Ideas, Ltd.

**Product choices often vary by region due to differences in regulatory and agency requirements, availability and other key factors. Please contact your nearest sales office for assistance in choosing the right solution for your locale.**

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