



# Magnetizable Inks for Enhanced Recycling

## The Startup Lab at GS1 Connect

GS1 Connect® is the annual user conference and exhibition hosted by GS1 US® that highlights the use of GS1 Standards to help drive innovation and business opportunities. Since 2019, The Startup Lab at GS1 Connect has been showcasing emerging technologies that provide GS1 US members with new ideas and solutions.

### The Challenge

PET, short for polyethylene terephthalate, is a clear, strong, and lightweight plastic used for packaging foods and beverages, including convenience-sized soft drinks, juices, and water, as well as salad dressings, peanut butter, cooking oils, mouthwash, shampoo, liquid hand soap, window cleaner, and more.

While PET packaging is convenient, it has posed challenges when it comes to an increasingly important consumer and corporate priority: recycling. The shrink sleeves wrapped around many of these packages reduces their recyclability.

“Even after a collection, only one in six bottles are actually recycled back to bottle plastic,” explains Ravish Majithia, Founder & CEO, Magnomer. “Labels on bottles are hard to sort away, leading to low recycling yields.”

### The Innovation

Magnomer is tackling this problem head on with a unique magnetic ink technology that can be directly printed on all kinds of flexible packaging—from labels of shrink sleeves to multilayer flexible packaging. Because the ink is magnetic, recyclers can use existing magnets in their operation to simply pull away labels.

“Our inks, printed on packaging, allow material sortability by means of magnetic separation,” Ravish says. “This innovation eliminates key technological barriers holding back recycling.” He adds that Magnomer’s technology offers three distinct advantages.

First, it has a “drop-in” design that is not disruptive to current packaging design. Other label technologies require printers and bottlers to alter their operations. By contrast, Magnomer enables recyclability—that is, the ability to separate—in sync with current manufacturing and recycling operations. The second key advantage is the technology’s versatility. It can



Second-Place Winner



Magnomer is an advanced materials startup rethinking packaging design for the circular economy. The company is commercializing a patent-pending magnetic ink technology that allows consumer brands to design packaging for recyclability without sacrificing manufacturability.

Magnomer’s Design2Recycle approach for packaging has garnered industry recognition. It earned the Gold Award at MassChallenge, won the Materials Research Society’s iMatSci innovation showcase, and emerged the winner of Babson’s prestigious B.E.T.A. Challenge.

Magnomer was selected as the second-place winner of the 2021 Startup Lab Pitch Competition based on product originality, usability, societal impact, and other criteria. It emerged as the second-place winner among a field of eight startups.

#### Technology Focus

IoT

#### Industry Application

Retail Grocery

#### Business Processes Impacted

Sustainability/Circular Economy

support recyclability across multiple packaging categories regardless of polymer/resin and bottle shape. The third differentiator is traceability; being able to magnetically separate packaging elements makes it possible to estimate real recycling rates of packaging where Magnomer inks are present.

### The Power of Partnerships

Magnomer is currently serving customers at Fuji Seal, a major shrink sleeve supplier, and PepsiCo. Together with PepsiCo, the company is working to achieve innovation recognition from the Association of Plastic Recyclers (APR) and its Responsible Innovation program, including a joint publication certification from APR in 2021.

“Magnomer’s strongest value proposition and competitive advantage lie in the fact that we are in sync with current manufacturing and recycling infrastructure. We empower brands to deliver sustainable packaging without upending existing resources.”

**Ravish Majithia,**  
*Magnomer, CEO & Founder*

### Innovate with Us

**Learn more** about innovation at GS1 US.

### GS1 US’s Role

Magnomer’s innovative drop-in design allows the ink and magnets used in its process to work with existing GS1 Standards to leverage existing packaging design and operations.

“Magnomer offers a compelling example of how brands and manufacturers can achieve greater sustainability without completely transforming production processes,” says Melanie Nuce, Senior Vice President, GS1 US.

### About Magnomer’s Magnetic Inks

Magnomer’s Magmark SS magnetic inks are designed for the shrink sleeves that wrap around plastic bottles. The inks can be used to print via industry-standard flexographic or gravure printing as a color and/or as a transparent primer or varnish. These inks enable recyclers to magnetically separate the undesirable shrink sleeves from the bottles during PET recycling. Magnomer has designed the ink to work with magnetic separation equipment universally used by PET recyclers.

**To learn more, visit [www.magnomer.com](http://www.magnomer.com)**

### About GS1 US

GS1 US is a neutral, not-for-profit information standards organization that drives industry collaboration through the use of GS1 Standards—the most widely used supply chain standards in the world. The U.P.C.\* barcode, the most recognizable example of a GS1 Standard used to power commerce, is scanned more than six billion times per day globally. More than 25 industries rely on GS1 US to uniquely identify products, places, and other assets, and GS1 Standards to create a foundation for emerging technologies that improve security, visibility, interoperability, and trust in the supply chain. Unique identification makes it possible to take advantage of the technologies of the future—connecting consumers, patients, businesses, and products.

**For more information, contact [innovation@gs1us.org](mailto:innovation@gs1us.org) or visit [www.gs1us.org](http://www.gs1us.org).**

\*In this publication, the letters “U.P.C.” are used solely as an abbreviation for the “Universal Product Code,” which is a product identification system. They do not refer to the UPC, which is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials (IAPMO) to certify compliance with a Uniform Plumbing Code as authorized by IAPMO.

### GS1 US Corporate Headquarters

Princeton South Corporate Center, 300 Charles Ewing Boulevard  
Ewing, NJ 08628 USA  
**T** +1 937.435.3870 | **E** [info@gs1us.org](mailto:info@gs1us.org)  
**[www.gs1us.org](http://www.gs1us.org)**

### Connect With Us

