

GOING GREEN

a Henkel Industrial Adhesives newsletter about sustainability

Wasting Less, Recycling More: Reducing Our Carbon Footprint

A system-wide push is on to reduce the amount of manufacturing waste that Henkel generates. Still, some waste is inevitable from purged materials when machines are cleaned between runs, or from out-of-spec products or expired inventory.

The result: Stranded inventory and byproducts that need disposal. Traditional methods for disposing of manufacturing waste – either the landfill for non-hazardous waste or the incinerator for flammable adhesives – have environmental and economic price tags.

That's where Richard Stanley, Strategic Projects Director, comes in. He manages Henkel AI's alternative disposal of waste streams for North America by finding unconventional ways to deal with them. "Now, we're looking at every waste stream," he explains. "Can we put it to a second use rather than sending it to the landfill or incinerating it? We're looking for disposal routes that generate a modest revenue and help us avoid creating a dirty footprint."

For example, water-based white glue that is expired or out-of-spec becomes an ingredient for soil stabilization products used as a pre-treatment for road paving. Polymer-based hot melt purge is used as an additive by tire and shoe sole manufacturers. Natural carbon-based polymer byproducts are used in the production of charcoal briquettes.

In 2010, Henkel found alternative means for disposing of over 500 metric tons (550 U.S. tons) of waste stream byproducts and stranded inventory. Combined, that's the equivalent of 25 tractor trailer truckloads which otherwise would have gone into landfills or incinerators in the U.S. and Canada, Richard points out.

Waste Stream	Alternative Use
White Glue	Soil Stabilization Products
Hot Melt Purge	Tire and Shoe Soles
Carbon-Based Polymer Byproducts	Charcoal Briquettes

Part of Richard's role is to ensure that the after-Henkel life of those waste streams is fully documented and traceable, in accordance with ISO-1400 waste minimization standards provided by the International Organization for Standardization.

"Managing these waste streams more responsibly is one of the ways we're living up to our environmental policy," Richard says. "We do our best to help our company avoid wasting these products. We have created channels so they have a second life. And, we're reducing our carbon footprint." ♦



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Glowing in the Spotlight: MiraFoil® Wins a PAC Green Den Sustainable Award



Henkel Recognized in Dow Jones Sustainability Indexes



Greener Film Adhesive Based on Starch



A Brand like a Friend

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Think American Idol without the singing, but with fresh sustainable solutions for the packaging industry, and you've got PAC Green Den.

Ryan Weiss, Market Development Manager for AI Coatings, put MiraFoil® – Henkel's new metallic UV coating – in the spotlight at the PAC Green Den competition during this year's PACK EXPO International. MiraFoil® emerged with a PAC Green Den Sustainable Award.

The 100% solids, zero-VOC MiraFoil® coating is creating a stir in the industry for its ability to replace the foil lamination process in packaging and other printed materials. It can be applied to precise areas, reducing waste, improving quality and shortening lead times.

At Green Den, MiraFoil® earned high points for its reduced processing steps and improved recycling value compared to foil board, Ryan noted.

His presentation on MiraFoil® focused on:

- Success stories related to the technology's use
- Third-party reviews of the product
- Its status as the only coating to date that has passed the Greener Package™ sustainability review process
- Results of a recently completed, preliminary Life Cycle Analysis

PAC Green Den combines the ingredients of successful reality television and business matchmaking. Aimed at fast-tracking sustainable packaging innovations, the entertaining forum connected innovators and buyers in



front of a live audience at PACK EXPO on November 2 in Chicago. PMMA and PAC – The Packaging Association presented the Green Den event.

Competing with 10 others, Ryan took the stage to explain MiraFoil®'s features and benefits to panelists with sustainability and packaging experience: Tom Szaky, the founder and CEO of TerraCycle who is known for his ingenious solution for non-recyclable waste, and Brian Wagner, co-founder of PTIS. After the presentations, MiraFoil® placed third when the audience voted via ballot.

Ryan also had the opportunity to talk about MiraFoil® in face-to-face meetings with brand owners who are members of the PAC Green Den Committee. 🍀



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For the fourth consecutive year, Henkel has been recognized as sector leader in the Dow Jones Sustainability World Index (DJSI World) and the Dow Jones Sustainability Europe Index (DJSI Europe) – placing first in the Non-Durable Household Products category.

The DJSI identifies companies that follow the principles of sustainable development in their business operations. Only 10 percent of the world's largest corporations make the grade for inclusion in the DJSI World.

The annual review is based on an analysis of corporate economic, environmental and social performance, and addresses such issues as corporate governance, risk management, branding, climate change mitigation,

supply chain standards and labor practices. SAM, an investment boutique focused exclusively on sustainability investing, has compiled the rankings since 1999.

“We are absolutely delighted to have once again been so successful in this internationally renowned sustainability listing,” says Kasper Rorsted, Chairman of the Henkel Management Board. “It shows that we do far more than just talk about sustainability – for us, it is a principle that is utterly integral to our corporate philosophy and actions as a company.”



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Manufacturers of pasted valve bags – like the ones that concrete comes in at home improvement stores – want to make bags that are both strong and moisture-proof. Now, they also want to add green qualities to the mix, and Henkel has provided a solution.

The newly developed adhesive using natural starch shows how a renewable resource can replace a petroleum-based resource, cost less and be just as effective for pasted valve bags that contain a buried film. To create the bag's moisture barrier, film is buried between two plies of natural kraft paper. Adhesives – usually resin or acrylic-based products – laminate the film to the natural kraft, creating a sturdy, moisture-proof bag.

When a customer came to Henkel seeking a greener alternative to the synthetic adhesive being used for pasted valve bags, Waterborne Adhesives Group Manager Kristina Thompson and her team went to work. They came up with LM-LCS1, a new starch-based adhesive that is repulpable, compostable and recyclable. It also performs better and costs less, so the customer made the switch from a competitor's product.

"We wanted to introduce a low-cost film adhesive that would provide adequate adhesion that's good enough – but not overkill," says Hui Yang, lead development chemist. "This new starch-based product provides enough strength to hold the paper and plastic layers together."

It provides a benefit over standard resin- or acrylic-based emulsion adhesives, which are based on petroleum resources and actually provide more adhesion than necessary, Hui adds.

The natural polymer-based formulation that Henkel developed sufficiently binds the layers of the pasted valve bags together – and has a greener profile. LM-LCS1 is 70 percent water and only 30 percent solids, in contrast to a synthetic, resin-based laminating adhesive that's 50 percent solids.

"This product is now available to all customers and we are just beginning to push it to the market," says Karla Jimenez, Senior Applications Engineer for Henkel Adhesives. 🍀

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Collaborators on this edition are: Richard Stanley, Ryan Weiss, Hui Yang, Karla Jimenez and Isabelle Valois. Special thanks to Martha Davidson, freelance writer for Henkel, who created this edition of Going Green.

Published by Henkel Industrial Adhesives. For more information about sustainability, contact Isabelle Valois, Channel Marketing & Development Manager, Henkel Adhesive Technologies, at isabelle.valois@henkel.com, or visit www.naturallyhenkel.com.

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