

Eco-Tite® Shrink Bags Answer the Growing Call for Eco-Friendly Packaging

Independent Research Confirms that Eco-Tite® Bags Outperform Traditional Shrink Bags on Virtually Every Eco Measure

By Dave Engen, Curwood

Few packaging decisions are made today without considering the environment. Both retailers and consumers are demanding that packages be produced responsibly with a concern for all potential end-of-life scenarios.

At the same time, even the most eco-friendly packages have to be economically viable and attractive to the consumer in order to succeed.

Eco-Tite® shrink bags were specifically developed with the environment in mind. Originally engineered to meet European environmental mandates to eliminate chlorine from packaging, they have since evolved to become a superior choice for all-around eco-efficiency. Today's chlorine-free Eco-Tite® bags use 36% less material than competitive shrink bags. They also use less energy and fossil fuels; reduce freight volume and diesel usage; and produce less carbon emissions and wastewater than traditional shrink bags throughout their lifetime.

In addition to their environmental advantages, Eco-Tite® bags deliver all-around enhanced performance. On the production line, Eco-Tite® bags deliver exceptional machinability, offering a wider operating window and improved sealing properties. They deliver outstanding oxygen barrier to protect foods and extend shelf life. And aesthetically, Eco-Tite® bags feature excellent shrink and unsurpassed clarity for an attractive package with strong shelf impact.

Eco-Tite® shrink bags can be used for applications where traditional shrink bags are used, including:

- Retail and deli meats such as hams, marinated products, sausage and fresh beef and pork
- Retail and deli cheeses
- In-plant “age & cut” cheese and “cook & strip” poultry applications



This paper outlines the environmental and performance characteristics of Eco-Tite® shrink bags, including how they compare to traditional shrink bags.

A MODEL FOR ECO-EFFICIENCY

Curwood asked BASF Corporation, an independent third party, to analyze the environmental impact of Eco-Tite® bags compared to traditional shrink bags containing polyvinylidene chloride (PVdC). In a cradle-to-grave analysis, Eco-Tite® bags outperformed traditional shrink bags on virtually every eco measure.

The Chlorine-Free Advantage

Traditional shrink bags used for packaging meat and cheese primarily contain PVdC as a barrier layer, with heat-sealable polyethylene on both the inside and outside layers. PVdC carries a high environmental price tag due to disposal issues: it releases carcinogenic dioxins when incinerated for waste disposal or waste-to-energy use, and can pollute the recycling stream if mingled with recyclable materials.

Eco-Tite® shrink bags achieve excellent barrier without chlorine. Made from a heat-resistant coextrusion, Eco-Tite® bags rely on EVOH instead of PVdC for the oxygen barrier required to extend shelf life.

Source Reduction and Downstream Benefits

The BASF study shows that Eco-Tite® bags use 36% less material than traditional shrink bags, which means more bags fit per carton and less waste goes to the landfill. This is possible because Eco-Tite® bags:

- Utilize a high-flow sealant layer that delivers excellent caulking
- Feature a heat-resistant and abrasion-resistant outer layer

Thinner, stronger Eco-Tite® bags deliver the improved product-to-package ratio many processors are seeking, while actually improving sealability and abrasion resistance.

The fact that more Eco-Tite® bags can be packed per carton means:

- Fewer cartons are needed for the same amount of bags, thus saving trees and reducing waste.
- More bags can be packed on a truck, reducing freight volume and corresponding diesel usage 23%.
- Downtime and waste from changing cartons during the packaging process is reduced.

The following comparison of pallets required for a 50,000-bag order of traditional shrink bags versus Eco-Tite® bags demonstrates the savings:

Trickle Effect of Downgauged Eco-Tite® Bags

	Typical quantity per carton	Typical number of cartons per pallet	Bags per pallet	Typical number of pallets per 50,000-bag order	Space savings
Traditional 2 mil shrink bags 16" or narrower	500	20	10,000	5	
Eco-Tite® shrink bags 16" or narrower	665	20	13,300	4	1 skid out of 4 = 20%
Traditional 2 mil shrink bags 16" or wider	250	16	4,000	13	
Eco-Tite® shrink bags 16" or wider	333	16	5,328	10	2 skids out of 10 = 23%

Additional Eco Benefits

While many packages appear to deliver environmental advantages on first blush, analysis of all phases of the packaging life cycle can reveal shortcomings. That's not the case with Eco-Tite® shrink bags. The BASF Eco-Efficiency Analysis shows that Eco-Tite® bags:

- **Use 10% less energy** than competitive shrink bags from initial production through conversion and shipping. That saves resources and generates less greenhouse gas emissions.
- **Use 13% fewer fossil fuels** such as coal, oil and natural gas throughout their life cycle than competitive shrink bags, conserving the earth's critical resources.
- **Leave a 30% smaller carbon footprint.** Less material, less energy and less fossil fuel add up to less CO₂ emissions that can contribute to climate change.
- **Produce 28% less wastewater** compared to traditional shrink bags, decreasing the need for wastewater treatment.

Environmental Scorecards

While most retailers don't utilize packaging scorecards, you can be sure they still want processors to bring them ideas for more sustainable packaging. The table in the following page shows how Eco-Tite® bags compare to traditional shrink bags on a Wal-Mart Scorecard for Packaging.

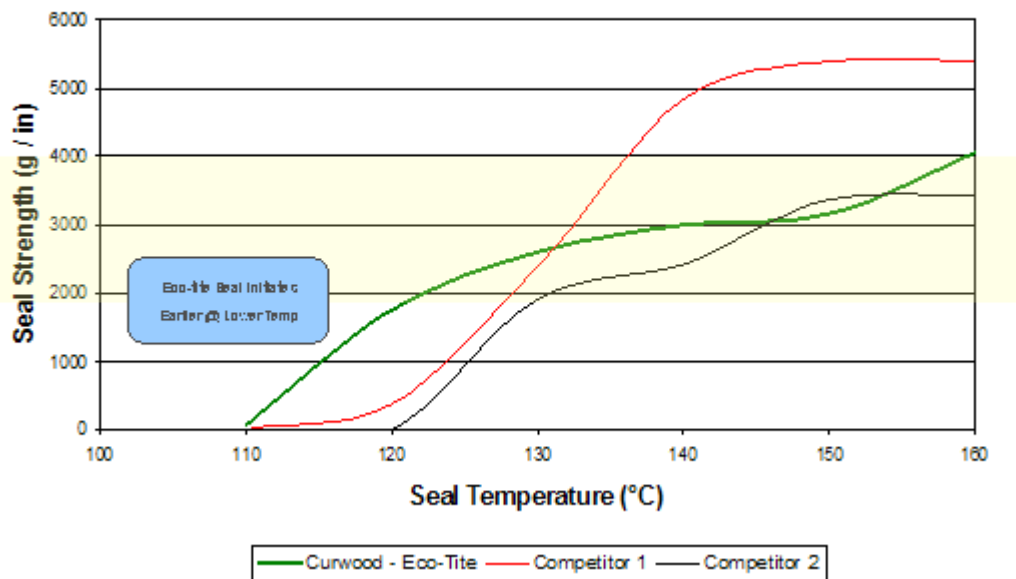
Wal-Mart Scorecard for Packaging

	2 mil PVdC Shrink Bag	Curwood Eco-Tite® Shrink Bag
CO2 Emissions	.000000001	.000000001
Sustainable Material Score	.000000903	.00000066
Average Distance Score	0	0
Package to Product Ratio	.000000903	.00000066
Cube Utilization Score	.19	.19
Recycled Content Score	.000000867	.00000064
Recovery (Recyclability)	.000003613	.000002793
Renewable Energy Usage	0.00%	0.00%
Manufacturing Innovation	0.00%	0.00%
Weighted Average Rank	5	10

SUPERIOR MACHINABILITY

Because they feature a high-flow sealant, Eco-Tite® bags have a wider sealing range for improved seal integrity. And since the bags seal well at lower temperatures, processors can save energy and/or accelerate machine speeds.

Heat Seal Curves - Eco-Tite vs. Competitive Samples



Eco-Tite® bags also seal better through wrinkles/folds for fewer leakers, reworks or waste—a significant benefit for high-profile products that create more folds in the bag. The improved sealability helps protect foods to minimize food waste throughout distribution.

Bag Sealability Through Folds

	Fold Width			
Curwood Eco-Tite® Bags	3.1mm	5mm	6.3mm	8mm
Seal Temperature 150°C	Good Seal	Leaker	Leaker	Leaker
Seal Temperature 175°C	Good Seal	Good Seal	Leaker	Leaker
Seal Temperature 200°C	Good Seal	Good Seal	Good Seal	Good Seal

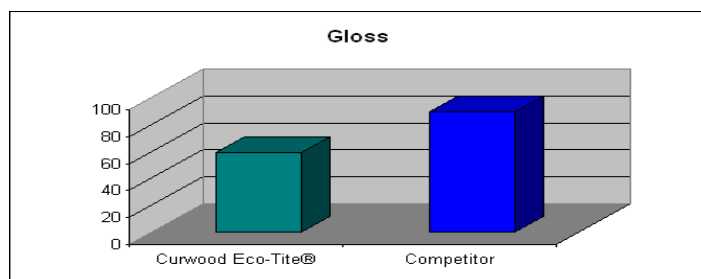
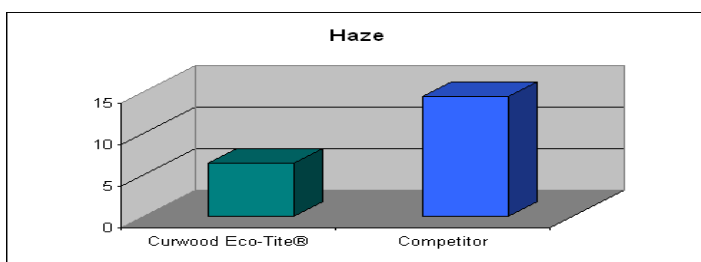
	Fold Width			
Competitor	3.1mm	5mm	6.3mm	8mm
Seal Temperature 150°C	Slow Leak	Leaker	Leaker	Leaker
Seal Temperature 175°C	Slow Leak	Leaker	Leaker	Leaker
Seal Temperature 200°C	Slow Leak	Leaker	Leaker	Leaker

Additionally, Eco-Tite® bags' heat-resistant outer layer keeps bags from sealing to each other, allowing multiple bags to be placed in a chamber for increased output and productivity.

STAND-OUT SHELF APPEAL

A third key area where Eco-Tite® shrink bags excel is aesthetics. The bags have excellent shrink for a tight fit with minimal dog-ears. Plus, they feature unsurpassed clarity and exceptional gloss for an outstanding product presentation, as the charts below demonstrate.

Haze and Gloss



Processors that utilize shrink bags can call out sustainability benefits on the package to differentiate their brands and create a marketing benefit. Examples include:

- Chlorine-free package!
- 36% less material than previous package!

CONCLUSION

Even if Eco-Tite® bags did not offer significant environmental benefits, these innovative bags still deliver advances in productivity and aesthetics that make them a superior choice for most applications where traditional shrink bags are used today. Factoring in the 36% source reduction, chlorine-free formulation and long list of additional eco-benefits over their lifetime, Eco-Tite® bags could easily become the new standard in shrink bag technology.

Contact Curwood at 800-544-4672 to learn how the latest breakthroughs in shrink bag technology will perform in your packaging operation.



2200 Badger Ave., P.O. 2968
Oshkosh, WI 54903-2968
920-303-7300 Fax: 920-303-7306
www.curwood.com

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