



LAMINATION

Peeling back the print industry's plastic problem

A report by Sophie McDonald

green^{HAT}
Creative thinking

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SUMMARY

- **Vast amounts of printed materials are coated in plastic lamination.** This is often unnecessary and purely used to improve appearance.
- **Plastic and paper can't be recycled together.** Laminates should be removed and disposed of separately before recycling the paper element.
- **It's unclear whether eco-friendly laminates match up to their claims.** They may not be properly identified and processed by waste management facilities and end up going to incineration or landfill.
- **Avoiding lamination altogether is the best solution.**
- Green Hat avoid lamination wherever possible and aim to spread further awareness of this issue in the print industry.

THE PLASTIC PROBLEM

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Plastic pollution is the conversation on everyone's lips. Generally speaking, most of us can agree that single-use plastics spell bad news. As a society we've greatly increased our awareness of the negative environmental impacts of daily items like straws, takeaway coffee cups and plastic bottles. And we know it's pointless to create a product that will last for hundreds of years, yet only be used for a matter of minutes. What if the same could be said about print?

The global print industry is immense, forecast to reach \$821 billion by 2022¹. Almost all consumer goods rely on printing, from packaging and labels to publications. However print may not spring to mind when you think of plastic pollution. After all it only uses paper and card, right? Well, not exactly.

Currently vast amounts of print media are coated in thin layers of plastic in the form of lamination. Lamination protects printed materials from moisture, ensures durability and can enhance its appearance. When producing print that needs to last a long time or function in damp or wet environments, this lamination is necessary. However, the issue lies in the endless short-lived materials like leaflets, flyers, catalogues and business cards that are never used for very long, yet are coated in a plastic layer that will never biodegrade.

Designers and businesses are rarely informed of the environmental impact of lamination. And despite their best intentions they may produce materials that will leave a dent on the planet.

When placing an order with an online printer, even one that advertises itself as eco-friendly, a customer may select lamination at the final stage. This means they end up with a product that isn't green after all. Without a health warning explaining the consequences of lamination, customers are unaware that this is even an issue. And so printed materials continue to be coated in needless plastic.



Consider the endless laminated printed materials circulated every day and this thin layer of plastic poses a serious problem.

WHAT ABOUT RECYCLING?

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The UK's Confederation of Paper Industries (CPI) has stated that, in an ideal world, "the industry would prefer that laminated paper material be collected separately and sold as a distinct and separate grade" and sent to "mills with the specialist facility to process it effectively²". However they also acknowledge that this isn't necessarily practicable in most cases. Highlighting the fact that laminated paper is difficult to process in existing waste facilities.

WHY CAN'T WE JUST RECYCLE PAPER AND PLASTIC TOGETHER?

Well, put simply, the two materials aren't compatible. Plastic recycling relies on heat and paper is recycled using water. This is why the industry recommends that printers make the paper and plastic easy to separate, otherwise they'll both end up heading straight for disposal. Less plastic also helps. Ideally the plastic content should be below 5% of the pack weight³. In order to separate easily, the two materials should be lightly bonded with a water-soluble adhesive agent so that the plastic layer separates easily in the paper pulping process².

Theoretically, plastic waste from the paper machine could be collected separately and processed properly. Unfortunately, this is never actually the case because the plastic is low-grade therefore not valuable, and removal and disposal add cost². **This plastic will be rejected and then sent off to incineration or landfill where it is at risk of polluting our environment⁴.**

WHAT CAN HELP THE RECYCLING PROCESS?

Plastic content below 5% of the pack weight



Materials bonded with water-soluble adhesive



Easily peelable laminates (and marked as such)



CAN CONSUMERS DO ANYTHING TO HELP?

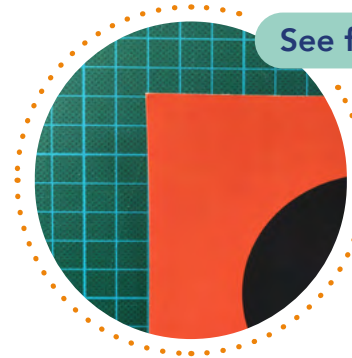
Consumers can help matters by peeling and removing laminated coatings, windows or linings.

Printers can facilitate this by making laminates easily peel-able and marking them as such. This could be achieved through the introduction of an industry standard logo which is easily recognised and encourages this positive behaviour. After all, most people are unaware that laminated material is even an issue.

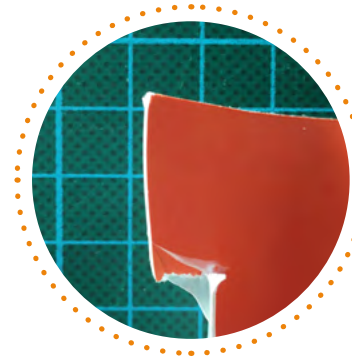


The focus shouldn't purely be on the consumer. Designers and print companies are responsible for the materials they specify and produce.

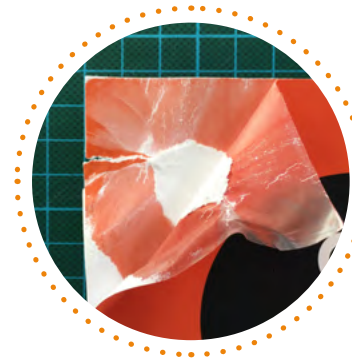
See for yourself...



- Printed material with a glossy appearance.



- Stretching and tearing reveals that the card is laminated with plastic on both sides.



- In most cases you can peel away the plastic laminate and dispose of it separately before recycling the card.



ARE THERE ANY GREEN ALTERNATIVES?

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There have been some remarkable innovations in recent years. These have given rise to a few different options for environmentally conscious businesses looking to produce laminated materials.





However, at present the options on the market come with a range of pros and cons. While it may be preferable to create a material from renewable resources like wood pulp or corn starch rather than oil, **it's important to note that these alternatives often aren't all they claim to be.**

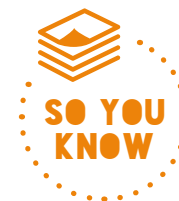
Ultimately it all comes down to whether there are waste streams in place able to deal with these products. **There's no point in creating a new 'wonder material' if existing waste management can't process it effectively.** And waste streams need to be aware of new products so they can easily identify them. Otherwise they'll be sent to incineration or landfill.

The Waste and Resources Action Programme (WRAP) states that **"The industry has no preference for biodegradable or conventional plastics since most plastic waste extracted during processing is sent to energy recovery or landfill³".**

Livvy Drake, Sustainability Consultant at Sustainable Sidekicks, concludes that **just because a material has 'eco' in the label or says its made from plants, it doesn't mean it is better.** To be truly responsible, suppliers who provide these materials should be offering take-back schemes. This means they work with waste management companies to ensure their materials can be processed in bulk.

WHAT OPTIONS ARE OUT THERE?

-  PLA (polylactic acid)
-  Oxo-biodegradables
-  Lam'on
-  Cellogreen



Just because a material has 'eco' on the label or says it's made from plants, it doesn't mean it's better.

PLA (polylactic acid)

This starch-derived material is supposed to be biodegradable, however it isn't really all it claims to be and generates new issues to replace existing ones.

If it ends up in landfill, conditions aren't right for it to properly break down. And if you send it off with your plastic recycling it can contaminate the waste stream and make other plastics unsaleable⁵. In its normal form PLA acetate film is usually not suitable for thermal lamination and producing the acetate that is suitable requires a dirty, energy-intensive process.

Oxo-biodegradables

These are oil-based plastics made with a salt additive. After two years this salt starts the process of oxidation and degradation.

Great, right? Well, probably not. While this may sound like a great option, oxo-biodegradable plastics have been criticised widely by scientists and environmentalists. This is because they don't actually biodegrade but rather break the plastic down into microplastics, essentially worsening the original issue.

Great ideas but more problems...



Cellogreen

This is made from highly refined wood pulp sourced from sustainably managed forests. This means it's made predominantly from cellulose.

Its manufacturers Celloglas claim that it's fully biodegradable and compostable and can be processed in a normal paper re-pulping system⁶. It's actually better to glue on than polypropylene and even has a higher gloss level. The downside is that it's not as strong as polypropylene and is more expensive⁷. And as previously mentioned, waste management facilities may struggle to identify this material and remove it before it enters the repulping system.

A solution that comes at a cost...



Lam'on

A new product produced by a group of Bulgarian innovators, claiming to offer a truly biodegradable and compostable alternative to plastic lamination.

LAM'ON contains no toxins, meaning that the material would not only be less impactful on the environment but also better for workers in the print industry. LAM'ON also uses the same machines as traditional lamination and costs the same. So for a printer, it seems like an attractive solution⁸.

The product is not yet available on the market but is available for pre-order now for distribution across Europe. Until it's available to printers it's difficult to assess whether LAM'ON will deliver on its promises. However unless waste management streams can process it, this product could end up in landfill.



A new material on the block...

THE VERDICT:

CHALLENGE WHETHER LAMINATION IS NECESSARY IN THE FIRST PLACE

Human beings are creatures of habit. We get stuck in the same routines and continue doing things in the same way we've always done. If a designer has always finished off their products with lamination, they may continue doing so purely out of habit.

At Green Hat, we champion creative problem-solving. We try to find creative solutions that allow us to avoid lamination without compromising on a product's quality or function.

For example, designers may turn straight to lamination if they're producing something that needs to last a long time. However there are folding methods that can be used to make printed materials more robust that work equally as well.

Or ultimate goal should be to design out plastic altogether, from the print process, or reduce it to an absolute minimum².



STOP. THINK.

Does that need to be laminated?



WHAT DO THE PEOPLE IN PRINT HAVE TO SAY?

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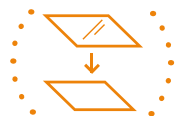
Here at Green Hat we work regularly with Taylor Brothers and WithPrint. They share their thoughts on eco-friendly print and lamination.

WITHPRINT

WithPrint are a Somerset-based company that factor the environment into their commercial decision-making to ensure that their high quality printing doesn't come at a cost to the planet.

We got in touch with Alan Smith from WithPrint to find out how they're shifting to become even greener. He describes this year as "a key period" for WithPrint as they "move all of the house stocks across to completely green alternatives". The company already uses a range of eco-friendly materials such as recycled card, paper tape and 100% recyclable banners.

Smith believes that sourcing green products is a "critical part of [their] business" and wants WithPrint "to be at the forefront" of environmentally conscious printing.



The issue of plastic lamination is seldom discussed in the printing industry. In order to combat this widespread problem, print companies need to explain the issues to clients and challenge whether lamination is necessary.

TAYLOR BROTHERS

Taylor Brothers are a print company based in Bristol. We chatted to Shaun Cooper who shared his insights on lamination.

Most notably Cooper states that lamination requests have increased in recent years. He estimates that on average 30-35% of Taylor Brothers' orders are laminated. We asked whether clients ever include a 'health warning' on their laminated printed materials, but he says he's "never seen anything like this on any work [they] have produced".

Taylor Brothers offers Cellogreen as an alternative to conventional plastic lamination, however Cooper states that "the price of this form of lamination is so expensive that most customers don't use it".

WHERE DOES GREEN HAT STAND?

WE AVOID PLASTIC WHEREVER POSSIBLE

When it comes to lamination we prefer to avoid it wherever possible. When clients request laminated printed materials, we like to consider both the function of the product as well as its lifespan.

Most of the time lamination isn't essential, in which case we inform our clients of the issues surrounding lamination. And we discuss ways to create the same great product without the addition of a plastic film.

- Green Hat aims to raise the bar in the design industry and encourage others to make environmentally responsible design the norm.
- We aim to keep informing ourselves and our clients about the issues that our planet faces and how these relate to our business.
- We are always looking for new solutions and commit ourselves to continually improving our practices to minimise negative impacts on the world around us.



SOURCES

Click to carry on your own research about the topic!

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Don't forget...

We're not plastic waste experts, we're graphic designers!

The information contained in this report is true to the best of our knowledge, as of January 2020. Please feel free to contact us if you have any comments or feedback.