

Retail Removable Labels

An under-estimated functionality?

Although widely used by manufacturers and retailers, removable labels remain poorly understood by many. In particular, a one-size-fits-all approach is common – a customer will often ask which removable adhesive is ‘best’ overall, without taking into account the many factors that can affect clean removal. Although both general purpose and high-performance removable labels exist, many consumers still experience frustration when trying to remove labels from purchased items.

An important business exists for label converters who have the resources and understanding needed to deliver reliable removable label performance that can enhance the perception of quality of their customer’s products. This white paper looks at some of the possible failure modes that occur when unsuitable labels are used, and how to troubleshoot for the right solution.

There is no doubting the impact on consumers of inadequately implemented label solutions, especially when removability is a requirement. An incorrect or untested choice of adhesive can cause anything from five minutes of frustration through to serious damage, and this is often before a new purchase has been used for the first time.

A study of more than 800 consumers conducted in the US by Avery Dennison confirms just how widespread the issue remains. Eight out of ten respondents said that they had experienced a difficult time removing a label in the last year*. Kitchen-related purchases were said to be the worst. Overall, more than half of consumers reported a sticky residue left behind on a product, and 80% said they had felt frustrated when removing a label ([see a video here](#)).

It goes without saying that this is not the best way to go about enhancing brand image and perceptions of quality, and costs can also be high if returns are made because of damage from labelling. Given the many removable label solutions available, it might seem hard to imagine how this situation can persist. The answer is simple: buyers of labelling lack the awareness or information needed to make the right decision. For label converters, the challenge lies in how best to highlight potential problems – and how to change behaviour throughout the value chain?



Where are removables used?

Removable or temporary labels come in all shapes and sizes, and are applied to many different surfaces, for different reasons and different periods of time. They provide tracking, pricing, product identification or promotional information. Some temporary labels replace individual item packaging, and so form an integral part of a product's shelf appeal. What all of these labels have in common, is that they must be easy to remove when they are no longer needed, without damage to the product.

Example applications include promotional/retail (price tagging, newspapers, magazines and books); window stickers and protection labels; apparel labelling; low temperature labels; labels for auction houses; administration; home office; and ship-and-track. Due to their lower initial tack, removable labels can also be used when repositionability is a requirement, to enable adjustment of an incorrectly applied label.

Informing the customer

The first step in building a fit-for-purpose removable labelling business is to remind customers that such labelling can be a crucial operational and branding issue, and should not be left to chance. Some brands are already taking label removability much more seriously. As an example, a large global retailer has been working recently with Avery Dennison to develop and launch universal removable label specifications. All of its suppliers (many of whom apply the labels at the manufacturing stage) will soon be required to conform to these specifications, so that labelling is consistent and so that consumers do not have a frustrating experience removing labels from purchased items. The specifications cover a wide range of factors, from substrates through to minimum and maximum tack and peel values.

The second step is to demonstrate to customers that removable labelling is not in fact a mysterious art, but is rather something that can be designed predictably given the right information and resources. This includes regular review – what worked last time might not work this time, because small changes in the application can be important. A methodical approach is key, and the right choice of labelling construction depends on understanding all of the following factors.

- The substrate The substrate is the surface onto which a label is applied, for example: glass, ceramics, wood, stainless steel or HDPE, to name a few. A low surface energy plastic and a high surface energy metal may need different adhesives. Shape, roughness and cleanliness of the surface must all be known – is it flat or curved, textured or corrugated?
- The facestock Internal strength or weakness of a facestock is a significant factor for ultimate removability. Higher strength ensures a greater degree of removability and can prevent paper tear.
- The size of the label The greater the area of adhesive contact, the greater the force required to remove the label. With large labels, a reduced adhesive coatweight or an ultra-removable adhesive should be considered.
- Vulnerability to damage Substrates should not be damaged by removable labels. A glass bottle can withstand a fingernail, but a soft plastic TV screen requires a label that can be removed with almost no force.
- How long the label will remain in place A label that may be in position for a long time could require a different adhesive due to ageing properties or a substrate's susceptibility to ghosting, a non-tacky, visible mark left behind after removal.
- Environmental exposure Environmental factors such as UV-exposure, chemicals, humidity and extreme temperatures can potentially affect labels. A label application exposed to these external environmental pressures needs the appropriate adhesives and/or facestock. Long UV exposure can affect removability and, in the worst case, damage the labelled product.

Selecting the right label construction

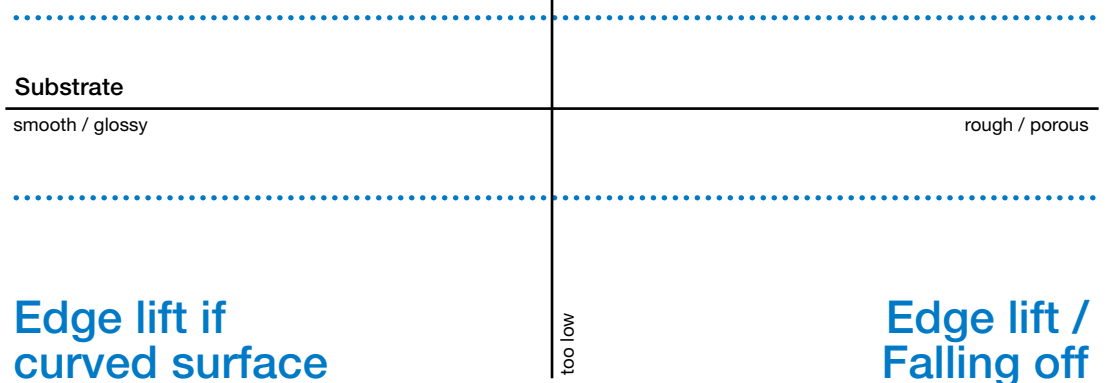
Selecting the most appropriate combination of adhesive and facestock begins with understanding the end-use application. Some failure modes for a typical removable label application are shown in the below figure.

In this case, the surface texture of this particular substrate is important in determining adhesive choice. The level of peel adhesion will also depend on factors such as label size, and this requires testing. Converters who are new to this area often require technical help, and Avery Dennison offers a wide range of removable constructions under its Select Solutions portfolio, all of which come complete with in-depth support for selection and testing.



**Paper tear /
adhesive transfer**

**Substrate damage /
Adhesive transfer**



Failure modes and ways to resolve them

Facestock tear

Peeling off a label requires a certain amount of force. If this force is higher than the internal strength of the front material, the label might tear – often the case where a permanent adhesive is being used as a removable solution. A wide range of removable adhesives with a lower peel adhesion is available to solve this problem, alternatively a white film/reinforced paper could be considered, offering increased strength.

Adhesive residue

If an adhesive has bonded more strongly to a substrate than to itself, adhesive residue is left behind on removal. This usually occurs on smooth surfaces with a high surface energy such as glass, porcelain and stainless steel (where an adhesive can stick easily). The solution is to use an adhesive with a lower peel adhesion, higher anchorage to the face material or a higher cohesive strength.

Ghosting

Different from adhesive residue, ghosting means no sticky residue is left behind, only a mark visible to the naked eye. This occurs when particles in the label or substrate migrate into each other, such as oils or surfactants. It is more common in substrates that are of a porous nature, such as wood, which can act like a sponge to these components or which can enable chemical reactions. Due to the vast variety in coatings and chemical treatments of different substrates, the answer lies in selecting the right adhesive options and technologies for a particular application.



Clean removal depends on material selection

Above all, a successful implementation of a removable label depends on the right technical support as well as the right choice of materials. Avery Dennison offers multiple adhesive technologies, with a range of general purpose and specialist removable adhesives for more demanding applications. This delivers the options needed to ensure good adherence and clean removal from a vast array of particular substrates. Avery Dennison adhesives are available with a wide range of different paper, thermal and filmic face materials (see product overview), and comprehensive technical support is available not only during product selection but also during product testing.

*On February 16, 2017, Ipsos fielded five questions for Avery Dennison in its daily eNation Omnibus to 1,000 adults across the U.S. A total of 819 participants qualified to answer these questions.

For more information on technical performance and printing recommendations, please refer to the respective datasheets. Please note that the Avery Dennison product range and service offering can be subject to changes. For an accurate overview, please check our website label.averydennison.eu or contact your local Avery Dennison sales representative.

DISCLAIMER - All Avery Dennison statements, technical information and recommendations are based on tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold with the understanding that purchaser has independently determined the suitability of such products for its purposes. All Avery Dennison's products are sold subject to Avery Dennison's general terms and conditions of sale, see <http://terms.europe.averydennison.com>

©2017 Avery Dennison Corporation. All rights reserved. Avery Dennison and all other Avery Dennison brands, this publication, its content, product names and codes are owned by Avery Dennison Corporation. All other brands and product names are trademarks of their respective owners. This publication must not be used, copied or reproduced in whole or in part for any purposes other than marketing by Avery Dennison.



North Asia
Shanghai, China
+86 21 33951888

South Asia Pacific &
Sub-Saharan Africa
Singapore
+65 6430 7000

Europe
Oegstgeest,
The Netherlands
+31 85 000 2000

Latin America
Vinhedo, Brazil
+55 19 3876-7600

North America
Mentor, OH
800.944.8511