



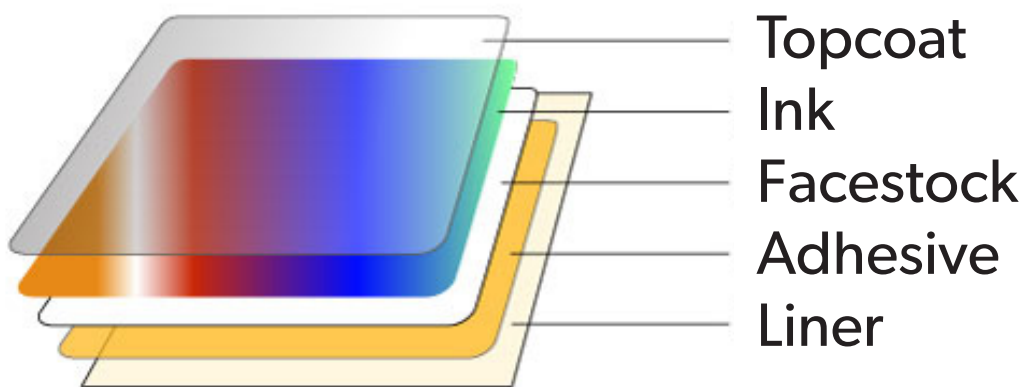
# Adhesives



# Adhesives are an essential component of making a successful label.



However, it can be challenging to determine which one makes the most sense for your product. There are many different factors to consider, such as what the label will be going on, how long it needs to stay there, and what types of conditions the label will go through. Is the label going on a product that needs to be refrigerated? Will it be exposed to heat or chemicals? These types of questions will help determine which type of adhesive will work the best.



The diagram above shows the basic components of a label. The topcoat is a physical surface coating that is applied to increase ink adhesion or modify gloss. The ink layer refers to the label graphics. The facestock is the film or paper that the ink is printed on. The adhesive is a coating used to bond the label facestock to the application surface, and the liner supports the product until use.

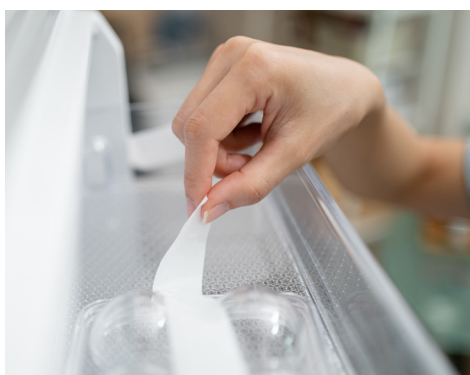
# Adhesive Types

The first step in choosing an adhesive is to determine what type you need. There are three main types of adhesives. Permanent, Removable, and Repositionable.



## Permanent

Permanent adhesives have a high adhesion and typically cannot be removed without damaging the label or the application surface that it is applied to. Permanent adhesives tend to be the most common and budget friendly option.



## Removable

Removable adhesives have a low adhesion and can often be removed without damaging the label and without leaving behind residue. However, they may cause damage to the surface of some materials. This type of label may eventually become permanent over time, although it is most often for temporary use only.



## Repositionable

Repositionable adhesives are ideal for labels that need to be removed or repositioned frequently without losing adhesion. Sticky notes are one example of this type of adhesion. They will typically not gain permanency over time. This type of adhesion may be useful for difficult label applications as they can be straightened if they aren't applied correctly the first time.

# Basic Properties

Once you decide which type of adhesive is needed, take a look at some of the additional properties that determine an adhesive's performance.



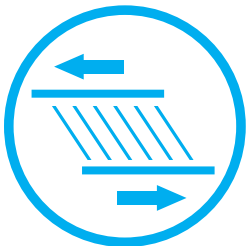
## Tack

Tack is the adhesive's initial grip to a surface. Adhesives with high tack will bond to a surface quickly without much pressure. Adhesives with low tack will need more initial pressure in order to create a bond, but can also be repositioned more easily.



## Ultimate Adhesion

Adhesion is the maximum strength of the bond between the adhesive and the surface after they fully bond. It can take up to 72 hours for this to occur, and depends on factors such as the type of surface, pressure applied, and conditions of the environment.



## Shear

Adhesives with low shear resistance are softer and flow better into their applied surface, but may split apart more easily under stress. Adhesives with high shear resistance are firmer and do not flow as well into their applied surface, but may be less likely to split apart under stress.



## Service Temperature Range

The service temperature range is the range that an adhesive can withstand after the label has been applied and reaches maximum adhesion. An example of a typical range may be  $-40^{\circ}\text{F}$  to  $200^{\circ}\text{F}$ , but could go up to  $300^{\circ}\text{F}$  with certain label stocks.



## Minimum Application Temperature

This is the lowest temperature an adhesive can be applied in while maintaining adhesion. If a label is applied below the minimum application temperature, it may become stiff and its adhesion strength will decline.

## **In-House Lab**

Once you've determined what type of adhesion you want and what type of properties it should have, it's recommended to have some testing done to make sure that your label and adhesive will be effective for your application. Whitlam Group has an in-house lab where we do a large variety of testing including:

### **Peel Strength**

- Used to perform peel adhesion testing which shows the amount of force required to remove a label from a wide variety of surfaces
- Perform 180° peel tests and tensile strength testing
- Initial tack

### **Thermal Cycle (Oven, Freezer, or Humidity)**

- Tests the ability of the label to stand up to various environmental conditions in a cyclical format
- Performs heat aging tests at extreme temperatures
- Reaches the maximum temperature of 275°C
- Used for humidity and environmental testing

### **Fluid Immersion**

- Tests the ability of the label to resist the effects of a wide variety of chemicals



## Learn More Today

It can be challenging deciding what adhesion type is needed for a label, but if you understand what the label will be used for and what situations it will encounter, the experts at Whitlam Group can help you decide what's best, and perform tests to ensure that the solution is effective.



### Memberships and Affiliations



### Certifications



## About Whitlam Group

Whitlam Group is a leader of engineered label solutions and functional parts, solving complex label challenges for the world's largest corporations. Serving the automotive, industrial and consumer goods market for over sixty years, as a strategic partner. We understand the needs and processes of our customers and we proactively help them to achieve their objectives.

Learn more at [www.whitlam.com](http://www.whitlam.com)



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